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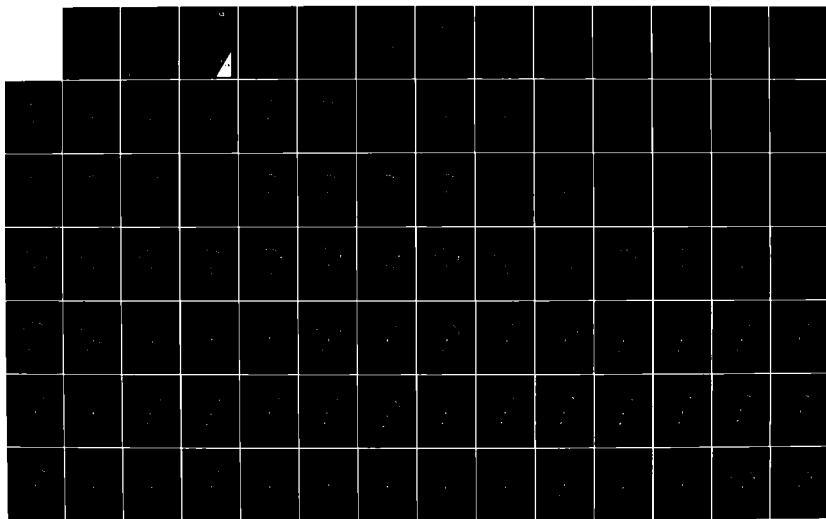
ANTARCTIC ICE CHARTS 1981-1982(U) NAVAL POLAR
OCEANOGRAPHY CENTER WASHINGTON DC 1982

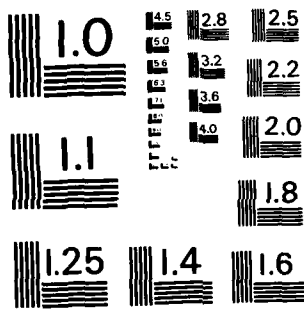
1/3

UNCLASSIFIED

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MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

UNCLASSIFIED

ANTARCTIC ICE CHARTS 1981-1982

ADA 132323

PREPARED BY
NAVAL POLAR OCEANOGRAPHY CENTER,
SUITLAND, MD

ENC FILE COPY

PREPARED FOR
COMMANDER,
NAVAL OCEANOGRAPHY COMMAND
NSTL STATION, BAY ST. LOUIS. MS 39529

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DISTRIBUTION STATEMENT A
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Distribution Unlimited

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C ICE CHARTS

ANOGRAPHY CENTER,

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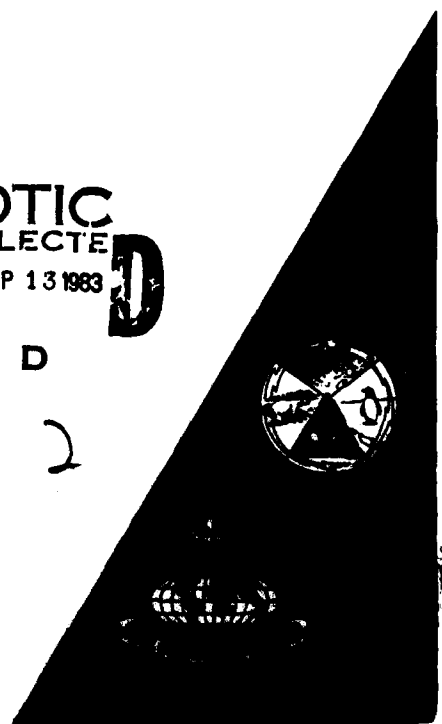
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2

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FOREWORD

The U.S. Navy has a long and colorful history of polar exploration and currently is an active participant in the growing national activity in the Arctic and Antarctic. The strategic importance and increased demand for the natural resources of these areas have resulted in a greater requirement for environmental information. In 1976, the National Oceanic and Atmospheric Administration (NOAA) joined the Navy in forming a Joint Ice Center (JIC) to combine efforts and resources in sea ice analysis and forecasting.

Through 1972, reliable sea ice information in the polar regions was based on a relatively few shore station and ship reports augmented by limited aerial reconnaissance data. These data were further restricted mainly to the relatively small areas observed primarily during the ship operating seasons. The advent of high resolution satellite imagery combined with the ground truth of conventional observations has in recent years enabled a description of the polar ice fields on a semi-synoptic scale in both polar regions.

→ This publication is the fifth in a continuing bi-yearly series of Antarctic sea ice atlases prepared in the Joint Ice Center at the Naval Polar Oceanography Center, Suitland. The atlas contains weekly charts depicting Southern Hemisphere ice conditions and extents. The information presented was prepared under operational time constraints principally from satellite imagery supplemented by conventional observations. Table 1 located on the inside back cover summarizes satellite data availability for 1981 and 1982. ←

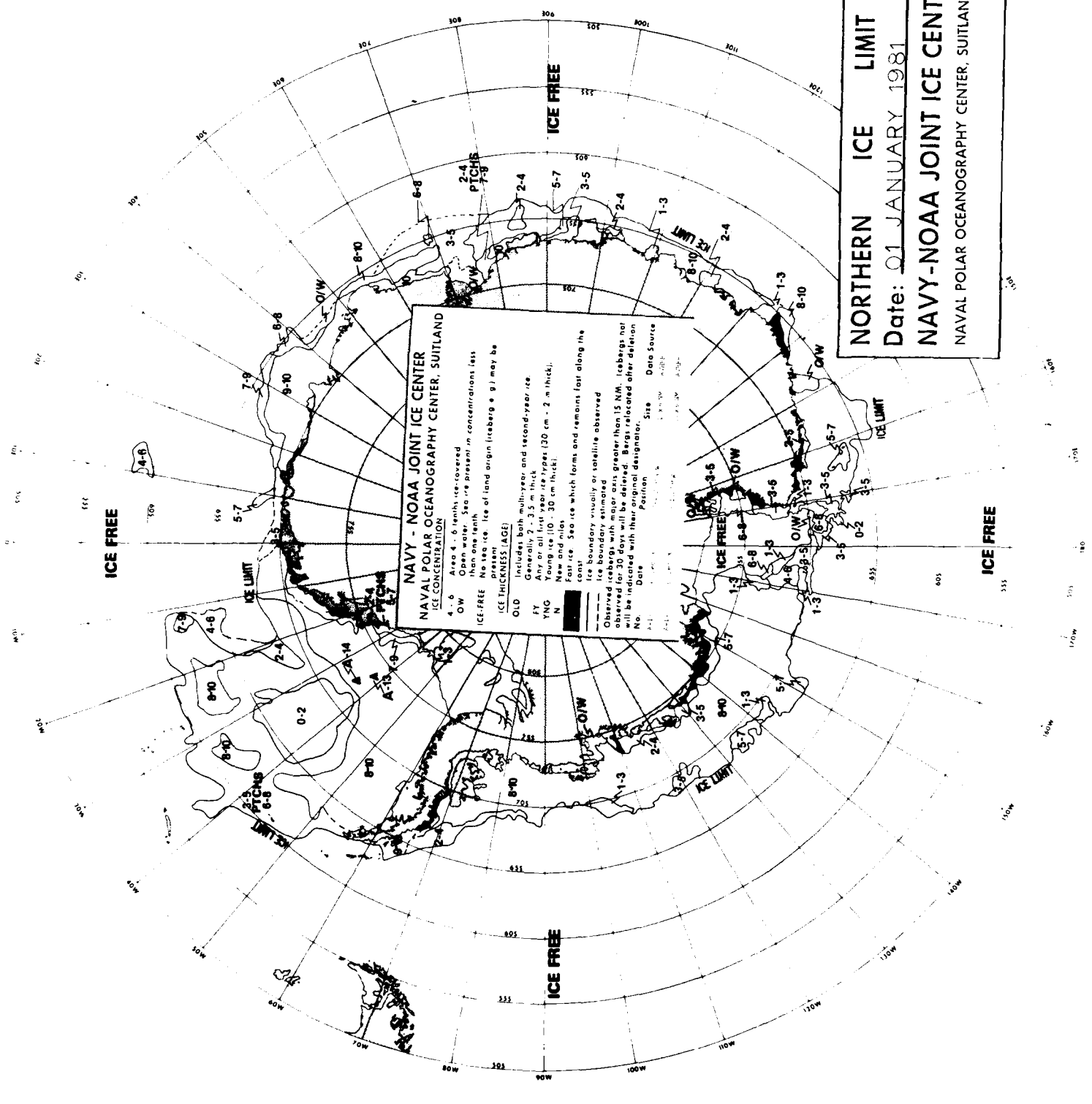
The purpose of this atlas is to provide operators and researchers with reliable weekly hemispheric ice analyses. Satellite data limitations and other difficulties involved in manually synthesizing various forms of ice data have evolved the following analysis procedures:

- a. Conventional shore station, ship and aerial ice reconnaissance observations are plotted on base charts and evaluated for timeliness.
- b. Satellite data is analyzed for ice information content, with the most recent and highest resolution considered first. Synthesis of conventional with satellite data yields the final analysis.
- c. Where sufficient data is not available to define the sea ice limit, an estimated ice boundary is depicted. After one week of no data availability the ice edge position is based on analyzed theoretical ice drift data and other diagnostic aids. During subsequent weeks of no data availability the ice edges approach seasonal mean positions.

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Joint Ice Center
Naval Polar Oceanography Center
4301 Suitland Road
Washington, DC 20390

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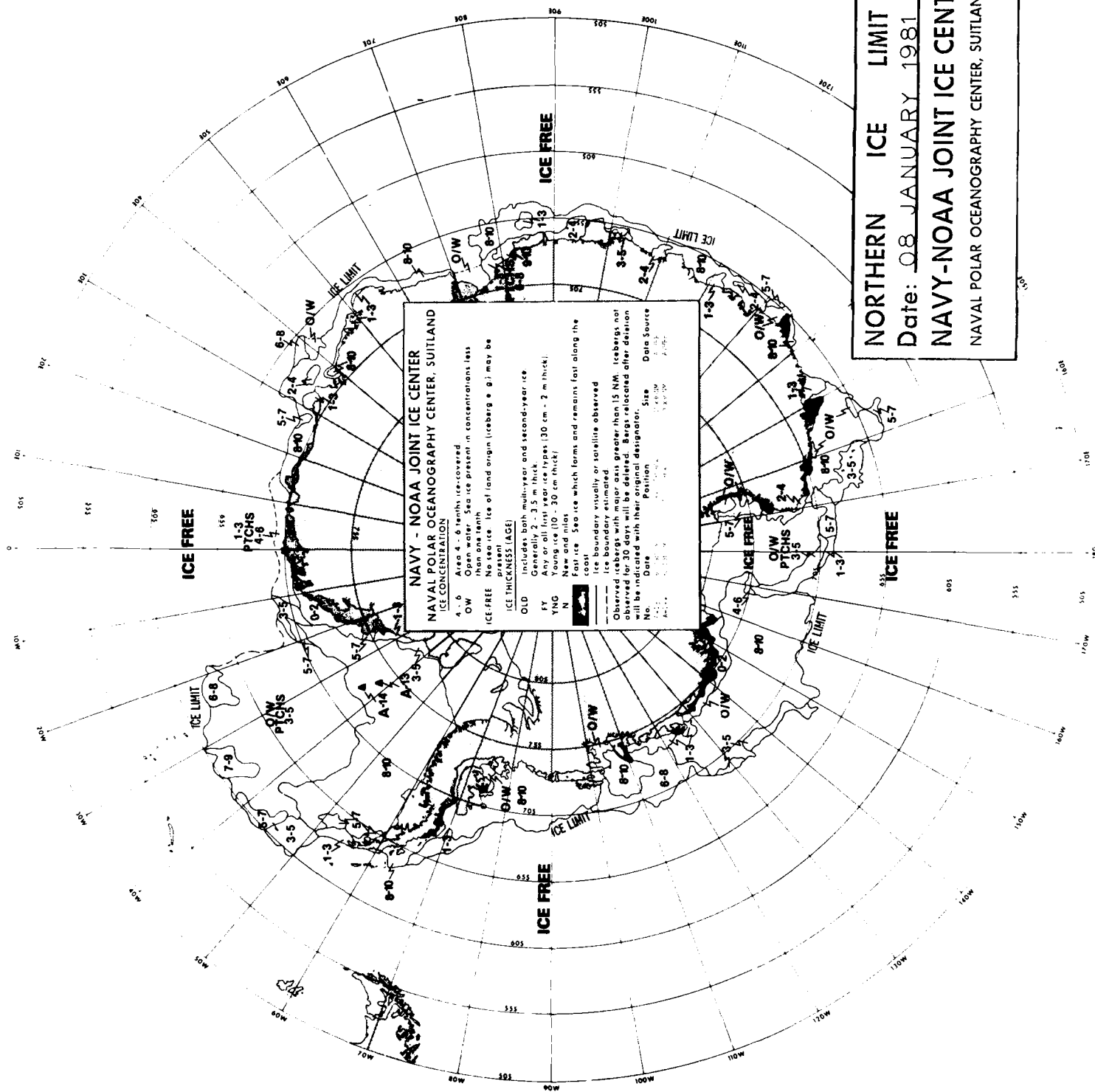
NAVY - NOAA JOINT ICE CENTER
NAVAL POLAR OCEANOGRAPHY CENTER, SUTLAND

ICE CONCENTRATION
 4-6 Area 4-6 tenths ice-covered
 OW Open water
 ICE-FREE No ice present in concentrations less than one tenth
 ICE-FREE No ice present in concentrations less than one tenth
 ICE-FREE No ice present in concentrations less than one tenth
 ICE-FREE No ice present in concentrations less than one tenth

ICE THICKNESS (AGE)
 OLD Includes both multi-year and second-year ice
 Generally 2 - 3.5 m thick
 NY Any or all first year ice types (20 cm - 2 m thick)
 YG Young ice (10 - 30 cm thick)
 N New and nilas
 N New and nilas
 N New and nilas
 N New and nilas

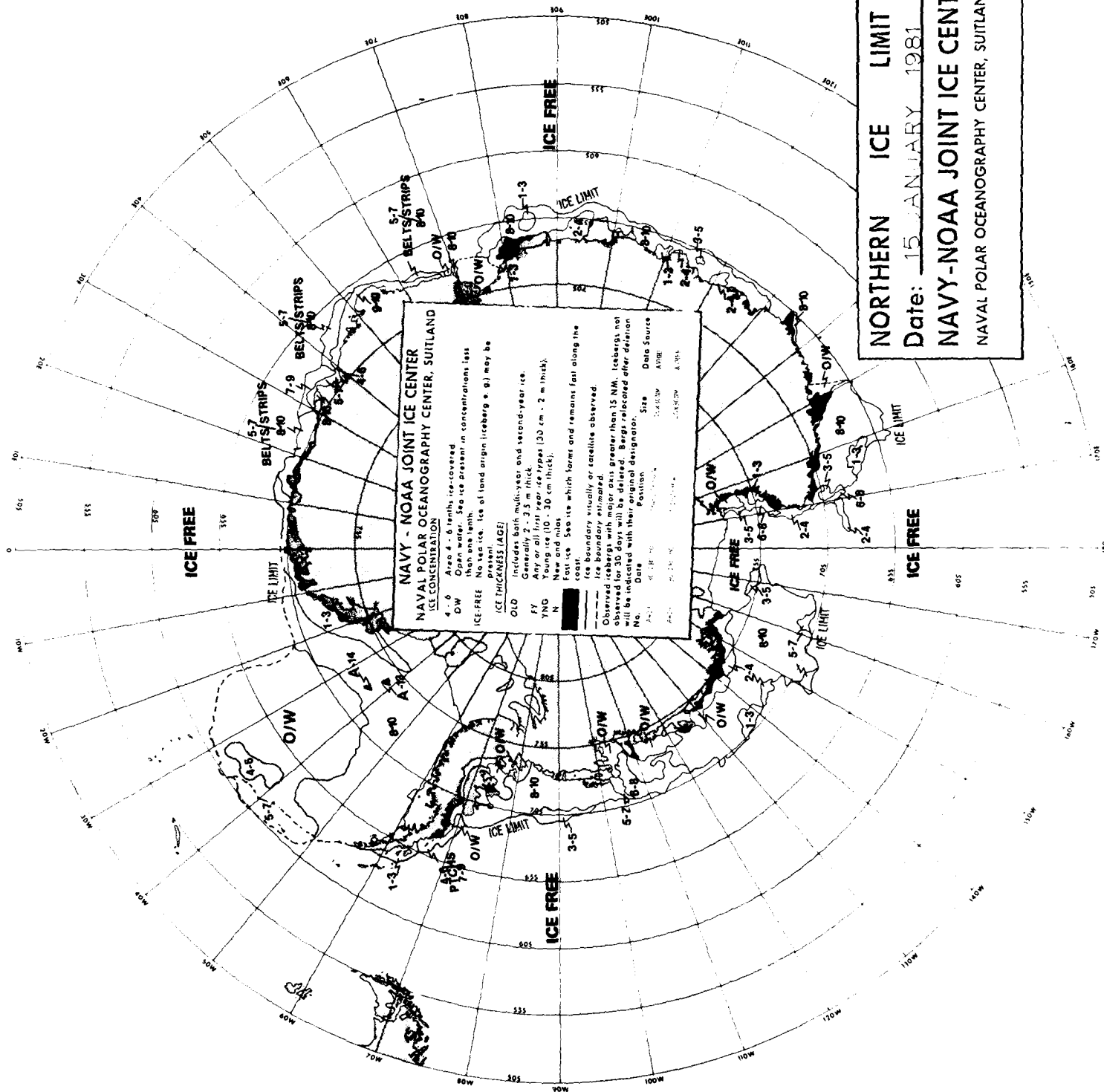
ICE BOUNDARY
 Ice boundary visually or satellite observed
 Ice boundary estimated
 Observed icebergs with major axis greater than 15 NM. Icebergs not observed for 30 days will be deleted. Berge located after deletion will be indicated with their original designator. Size Data Source
 Date Position

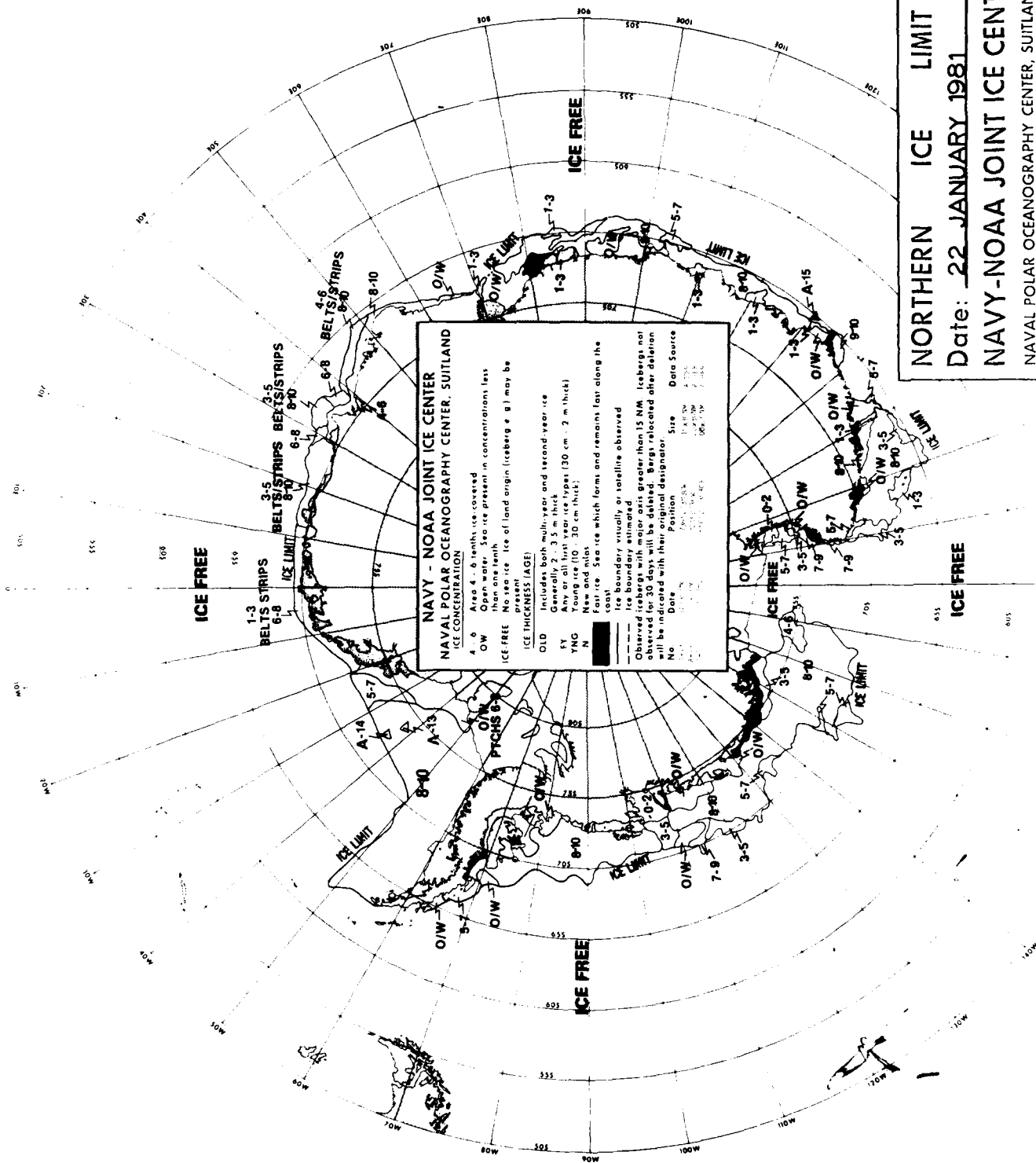
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NAVY-NOAA JOINT ICE CENTER
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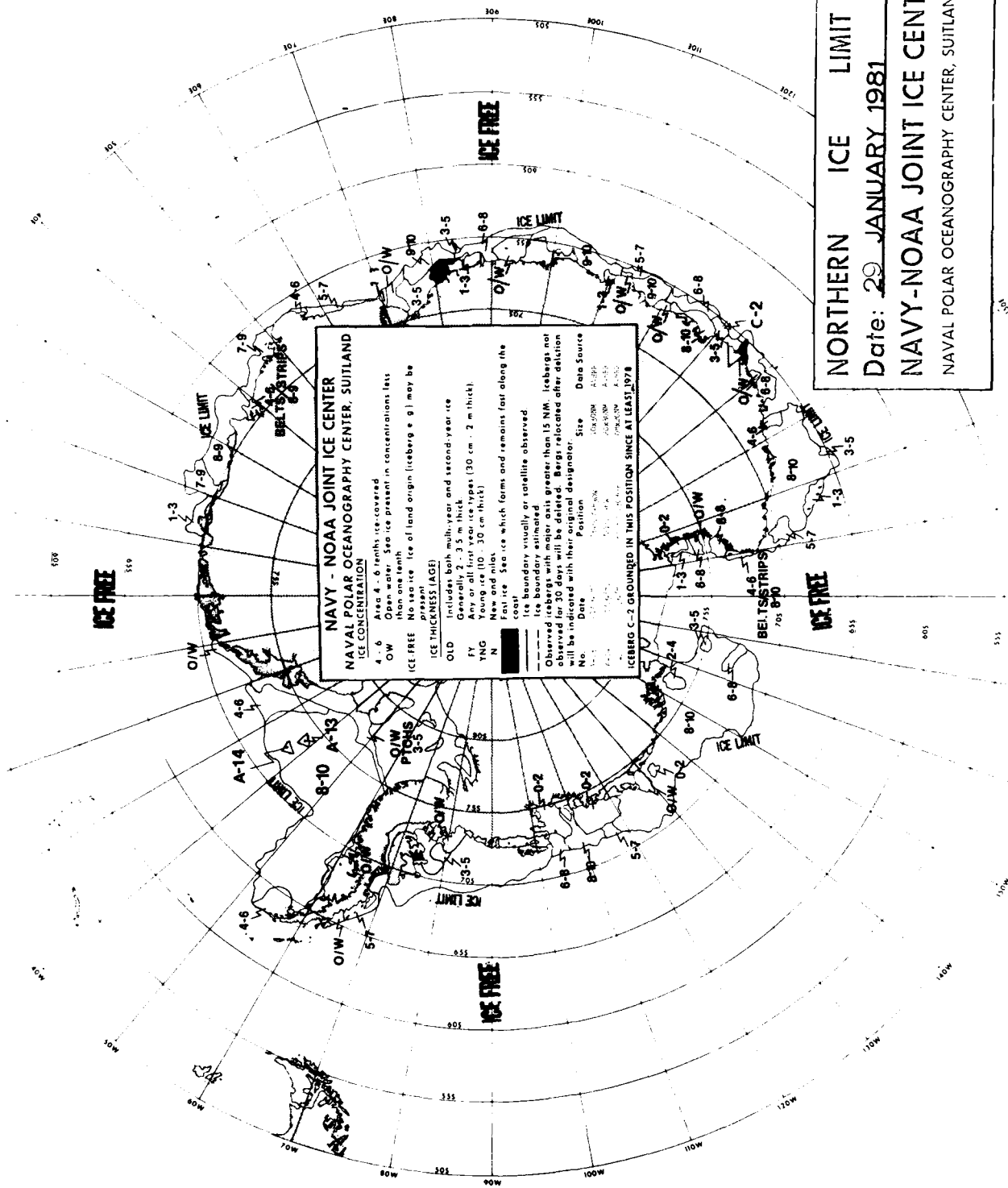


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 NAVAL POLAR OCEANOGRAPHY CENTER, SUTLAND

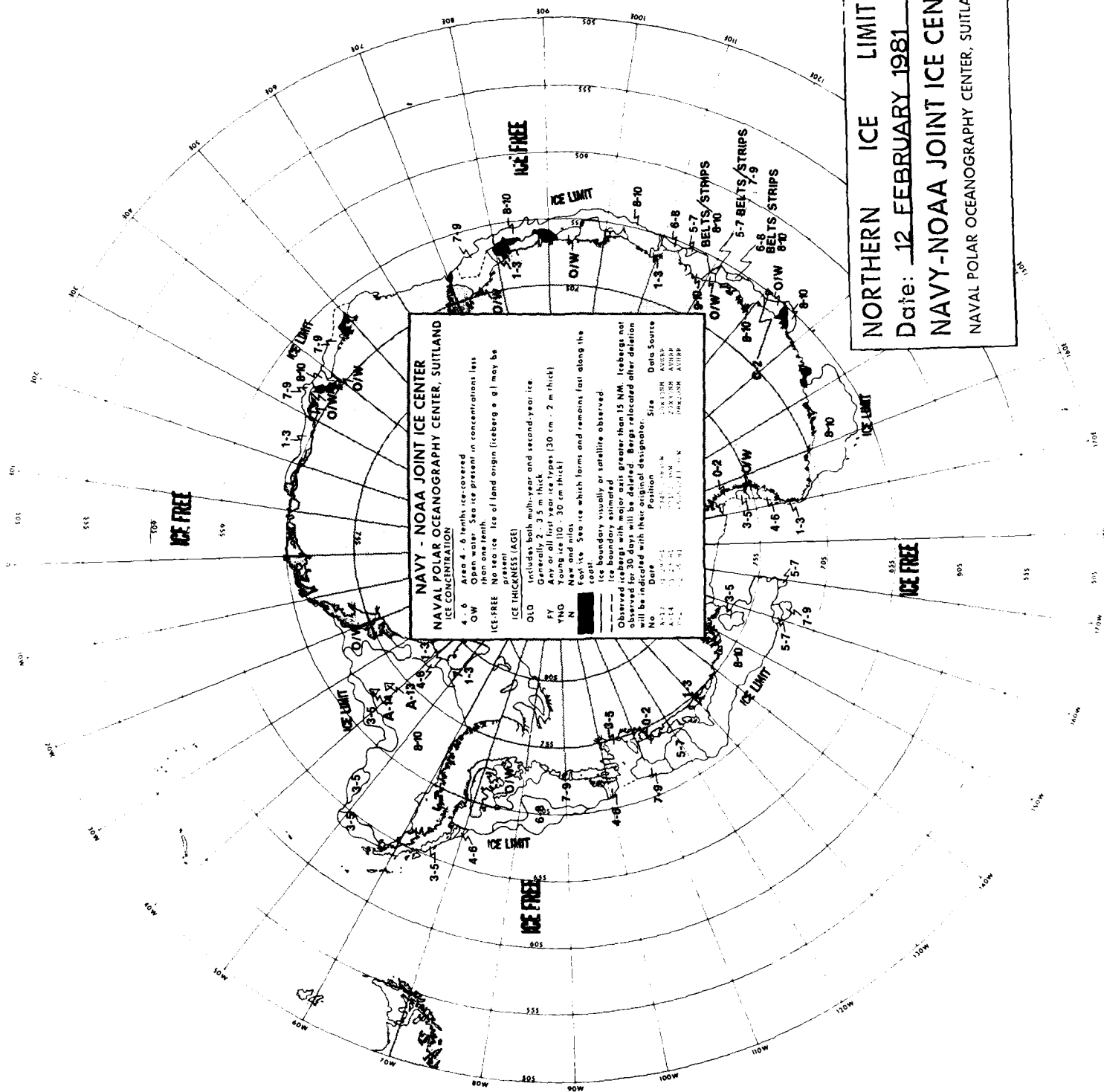
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Date: 15 JANUARY 1981
NAVY-NOAA JOINT ICE CENTER
 NAVAL POLAR OCEANOGRAPHY CENTER, SUITLAND







NORTHERN ICE LIMIT
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NAVY-NOAA JOINT ICE CENTER
 NAVAL POLAR OCEANOGRAPHY CENTER, SUITLAND

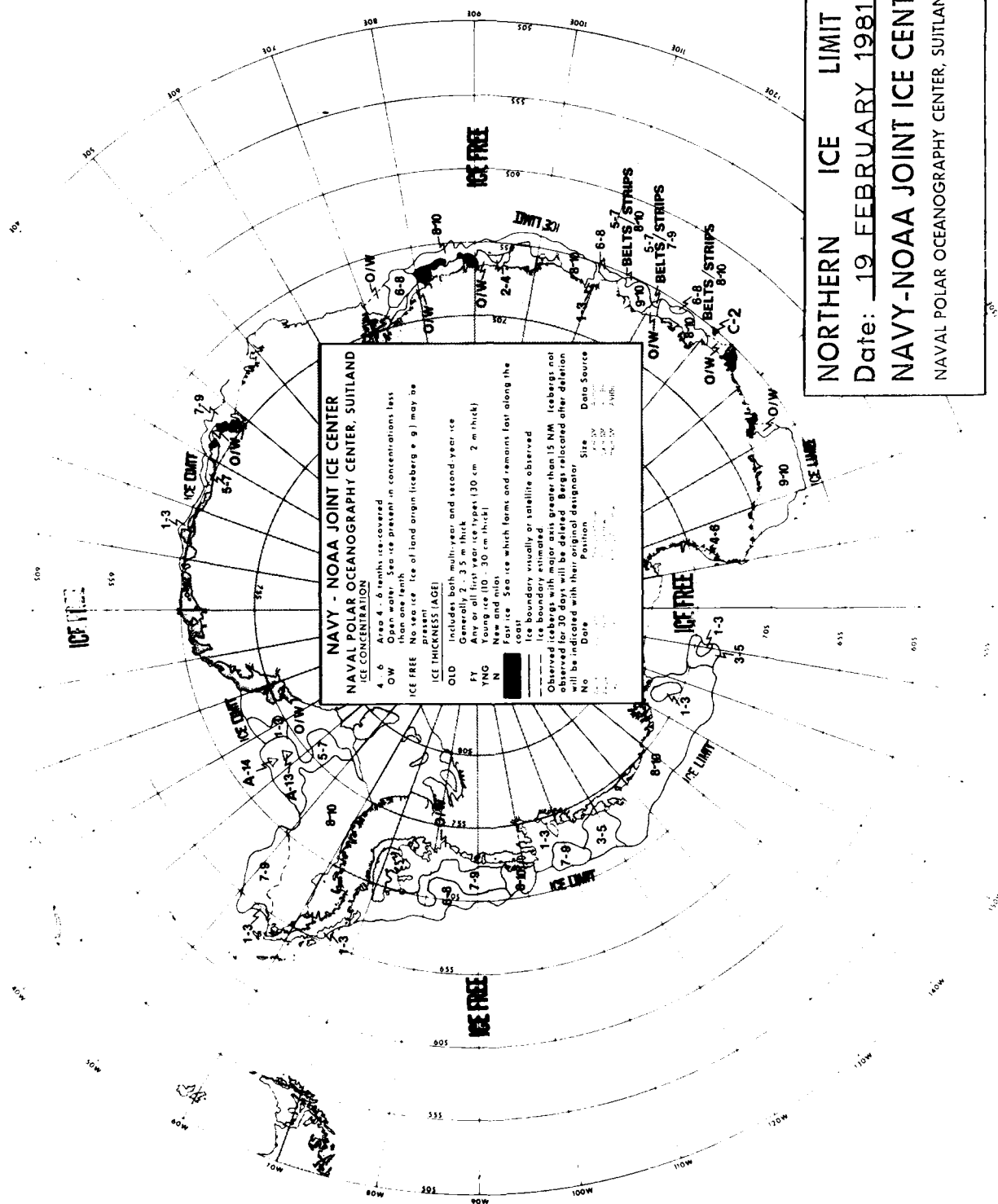


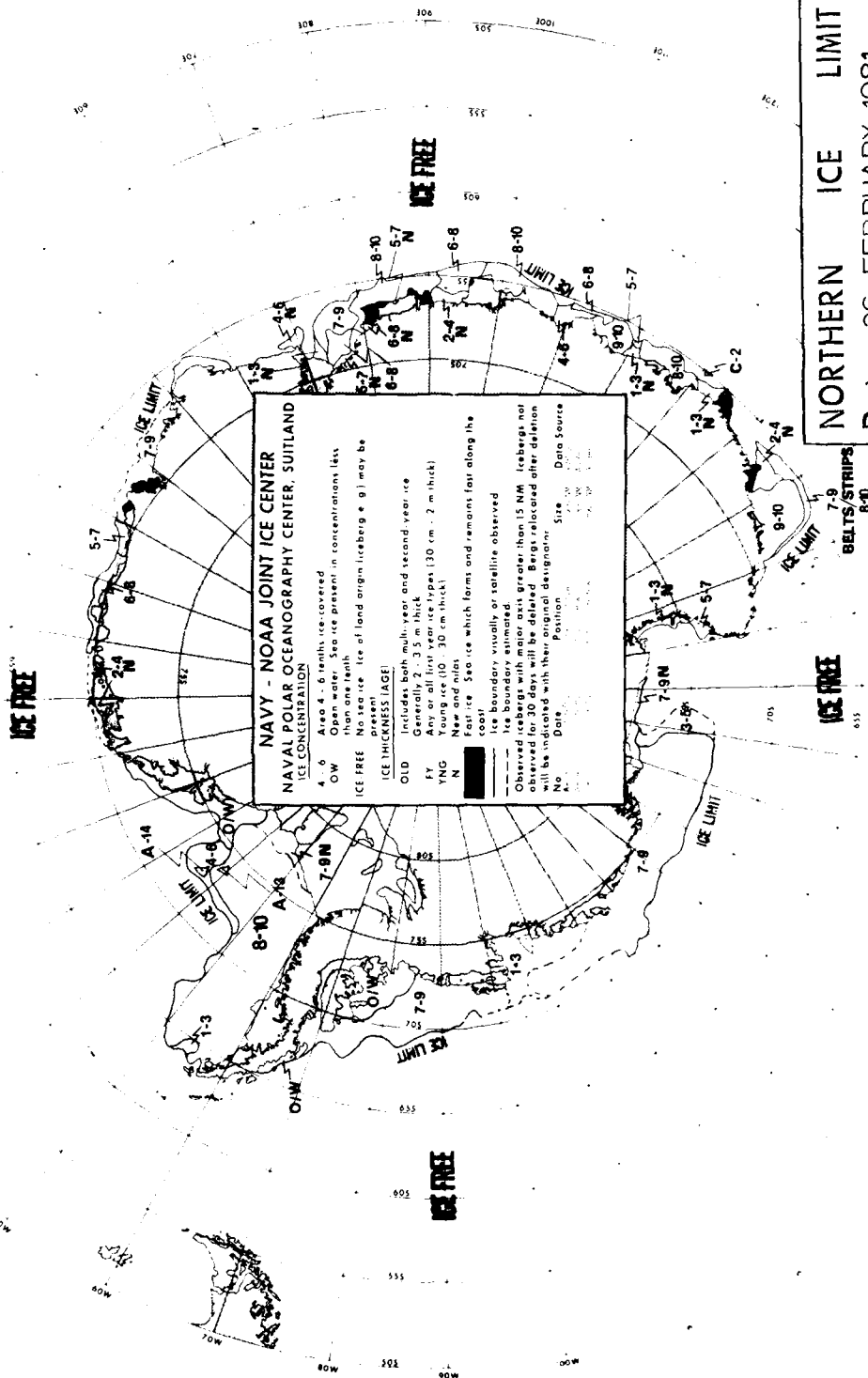
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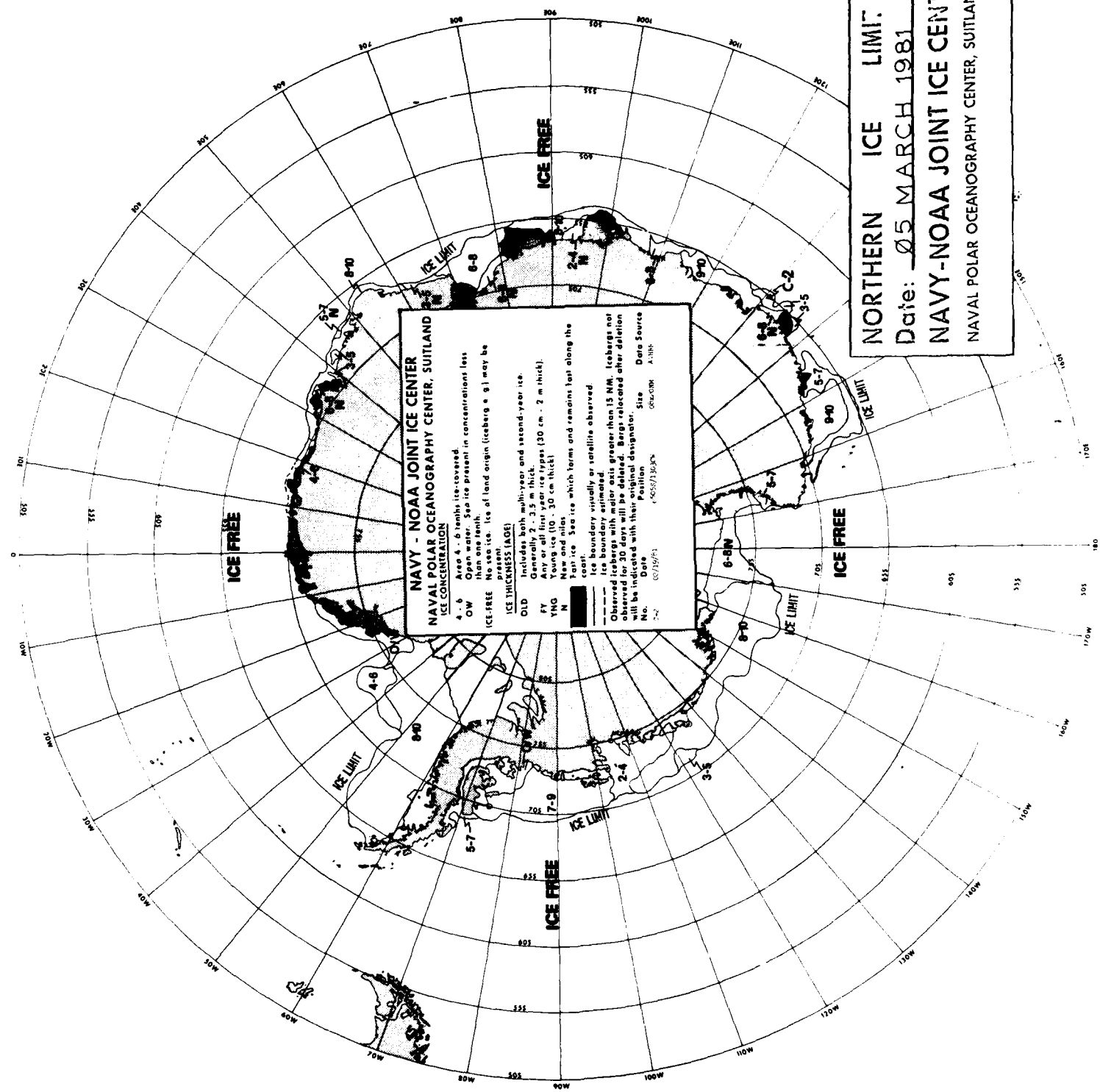
NAVY-NOAA JOINT ICE CENTER

NAVAL POLAR OCEANOGRAPHY CENTER, SUTLAND

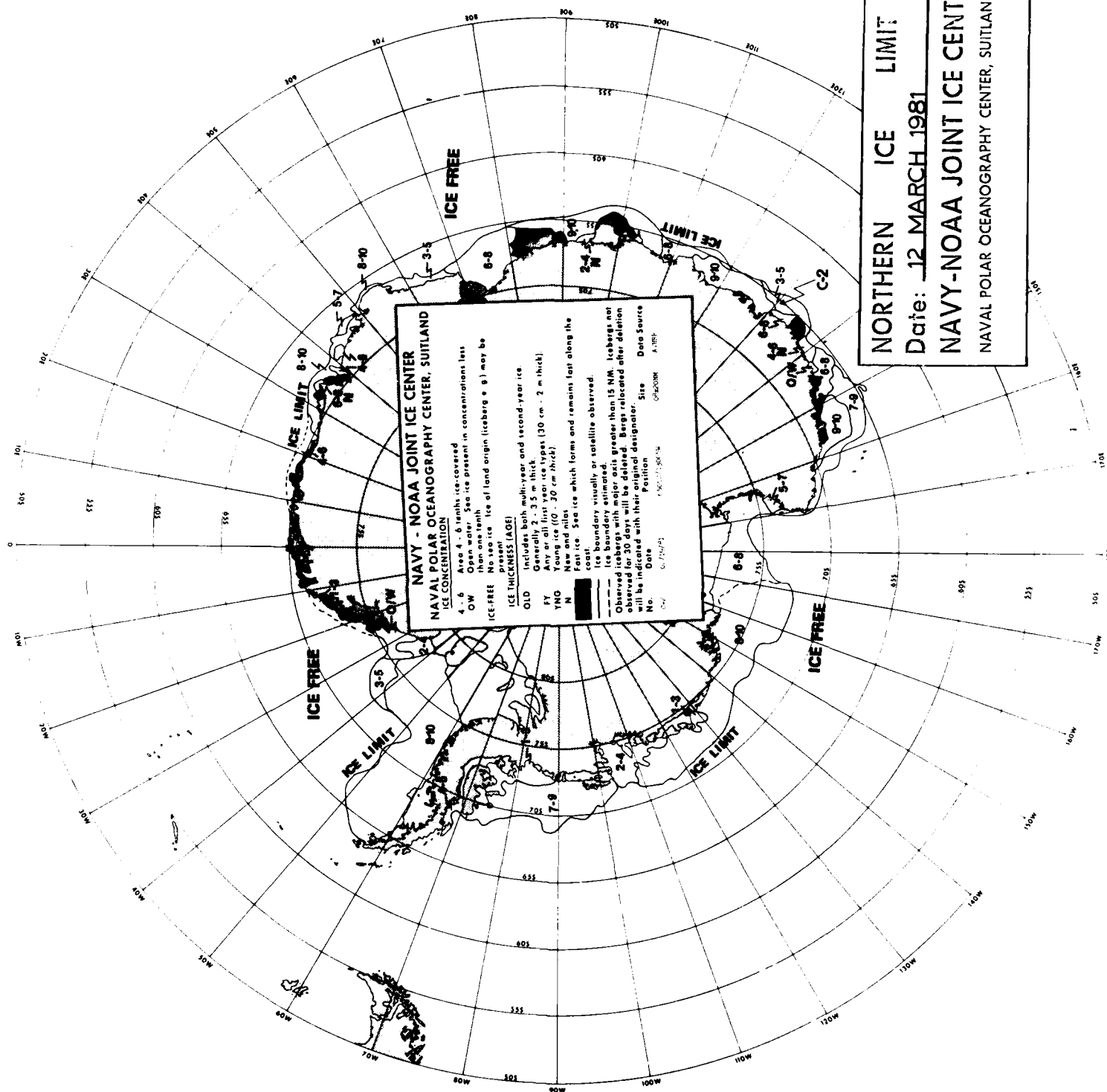




NORTHERN ICE LIMIT
 Date: 26 FEBRUARY 1981
 NAVY-NOAA JOINT ICE CENTER
 NAVAL POLAR OCEANOGRAPHY CENTER, SUTLAND



NORTHERN ICE LIMIT
 Date: 05 MARCH 1981
NAVY-NOAA JOINT ICE CENTER
 NAVAL POLAR OCEANOGRAPHY CENTER, SUTLAND

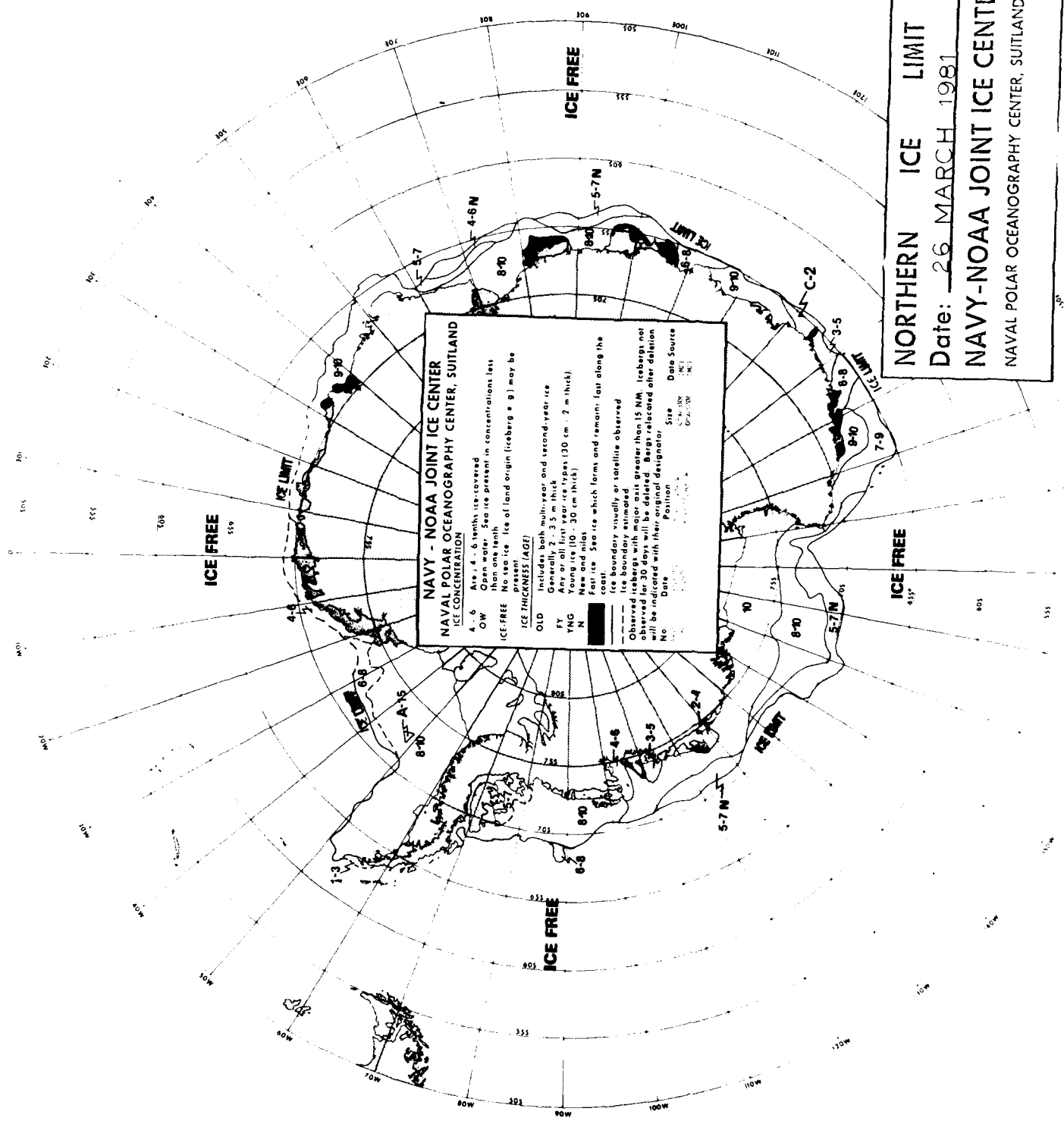


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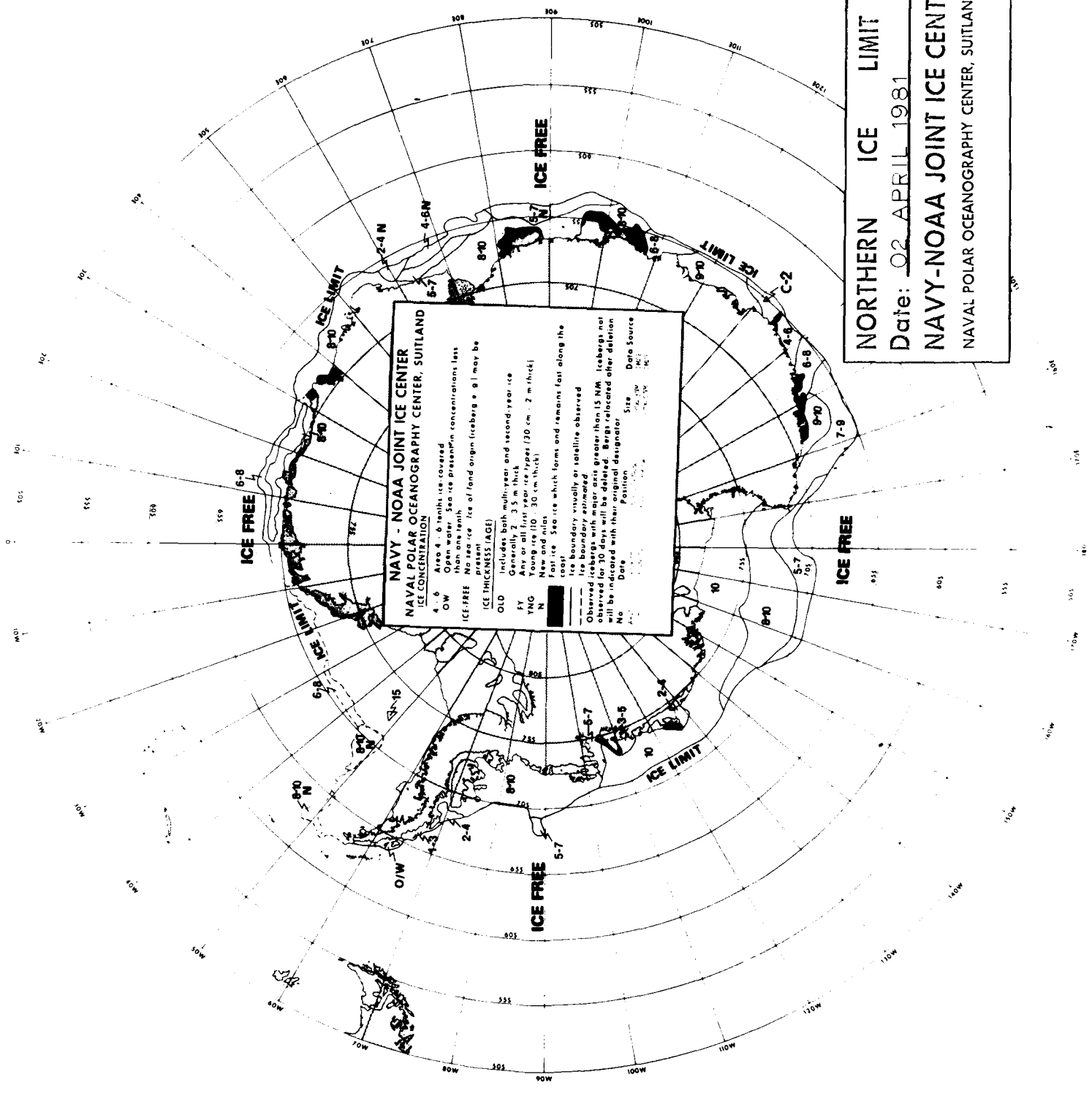
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NORTHERN ICE LIMIT
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NAVY-NOAA JOINT ICE CENTER
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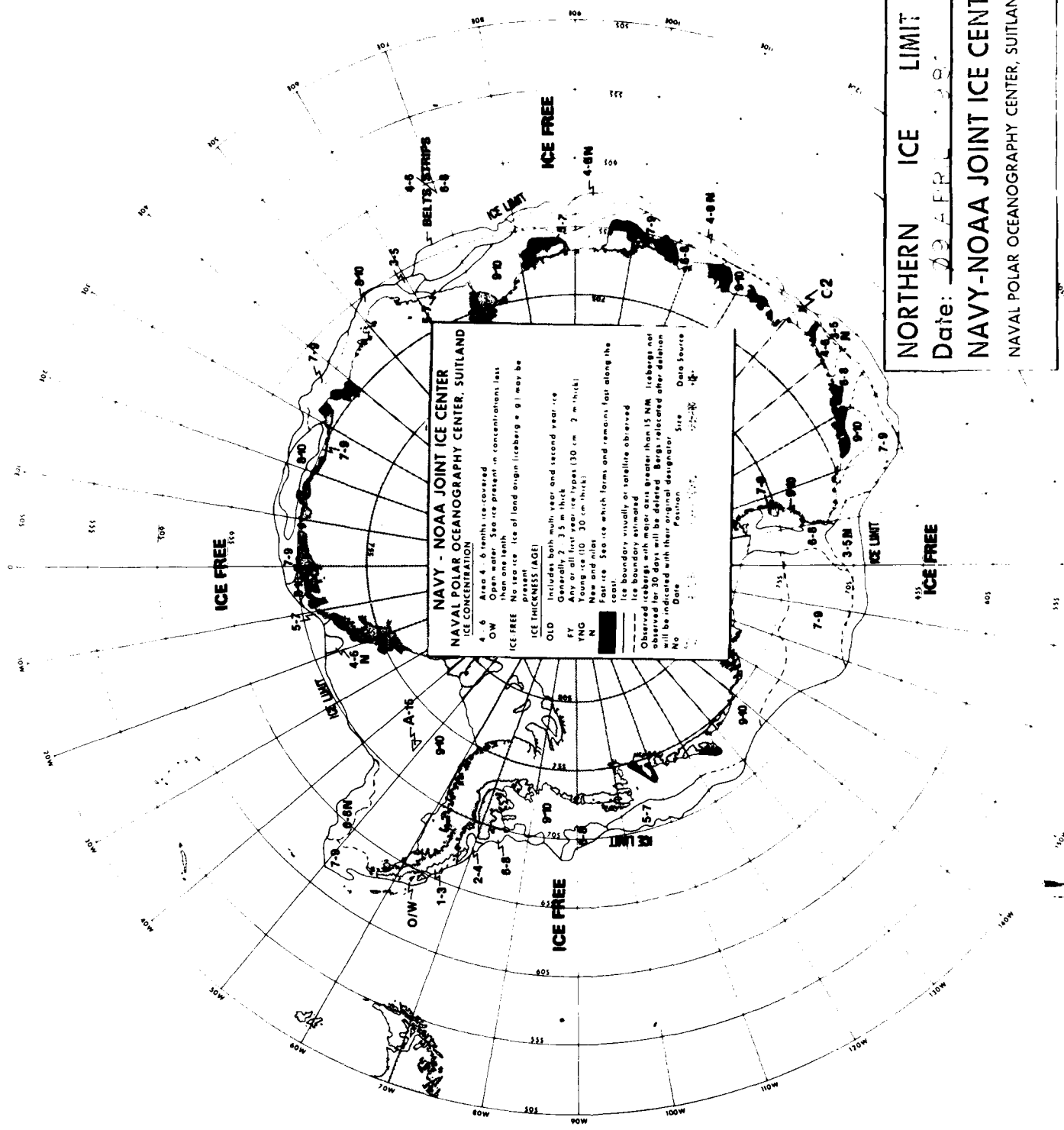


NORTHERN ICE LIMIT

Date: 02 APRIL 1981

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NAVAL POLAR OCEANOGRAPHY CENTER, SUTLAND



NORTHERN ICE LIMIT
 Date: 22 APR 1987
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NAVY - NOAA JOINT ICE CENTER
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ICE CONCENTRATION

4-9 Area 4-6 tenths ice covered
OW Open water. Sea ice present in concentrations less than one tenth
ICE-FREE No sea ice. Ice of land origin (iceberg or gl) may be present

ICE THICKNESS (AGE)

OLD Includes both multi-year and second-year ice
Generally 2-3.5 m thick
FY First year ice types (30 cm - 2 m thick)
YNG Young ice (10-30 cm thick)
N New and nilas
Fat ice Sea ice which forms and remains fat along the coast

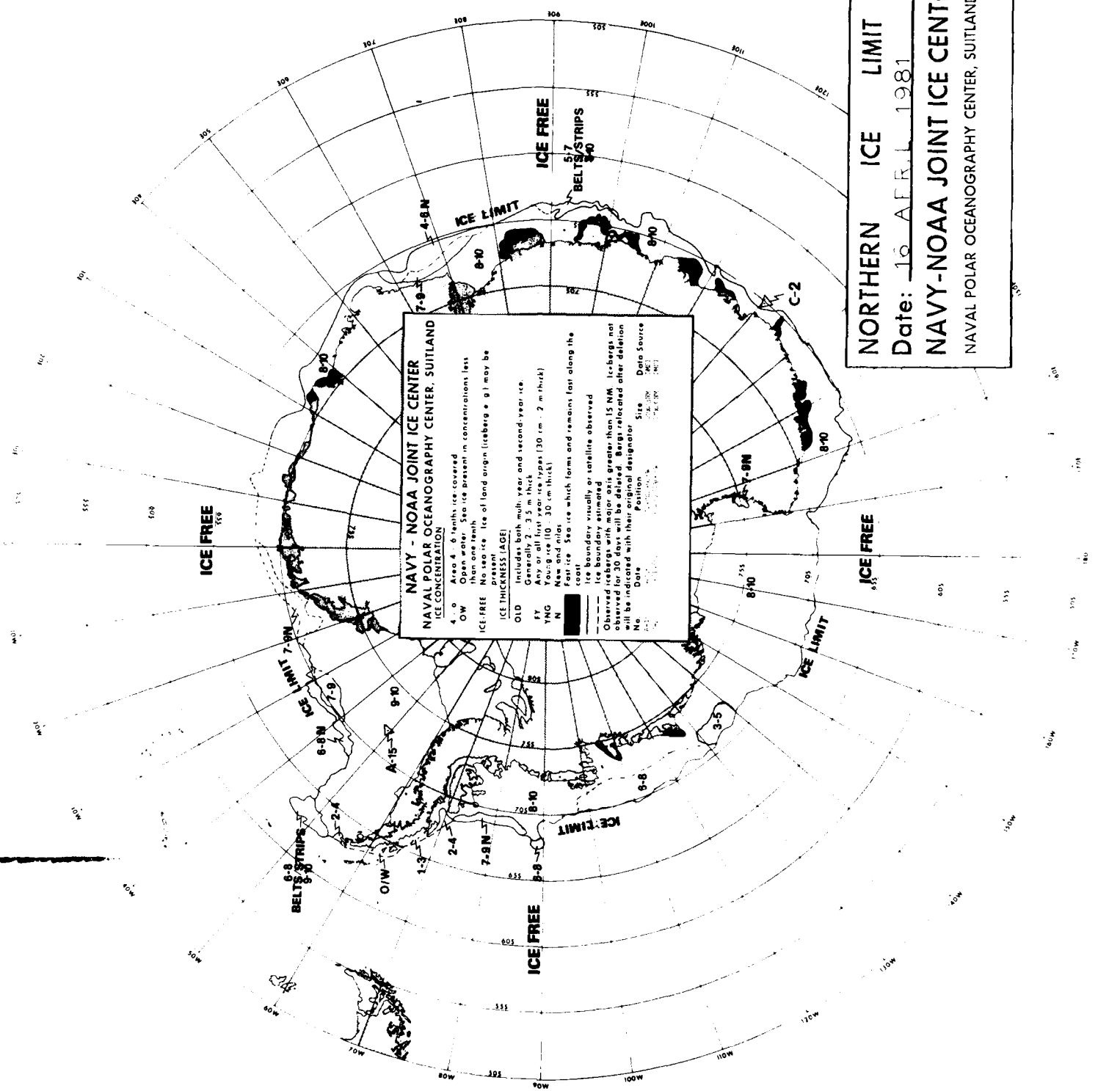
ICE LIMIT

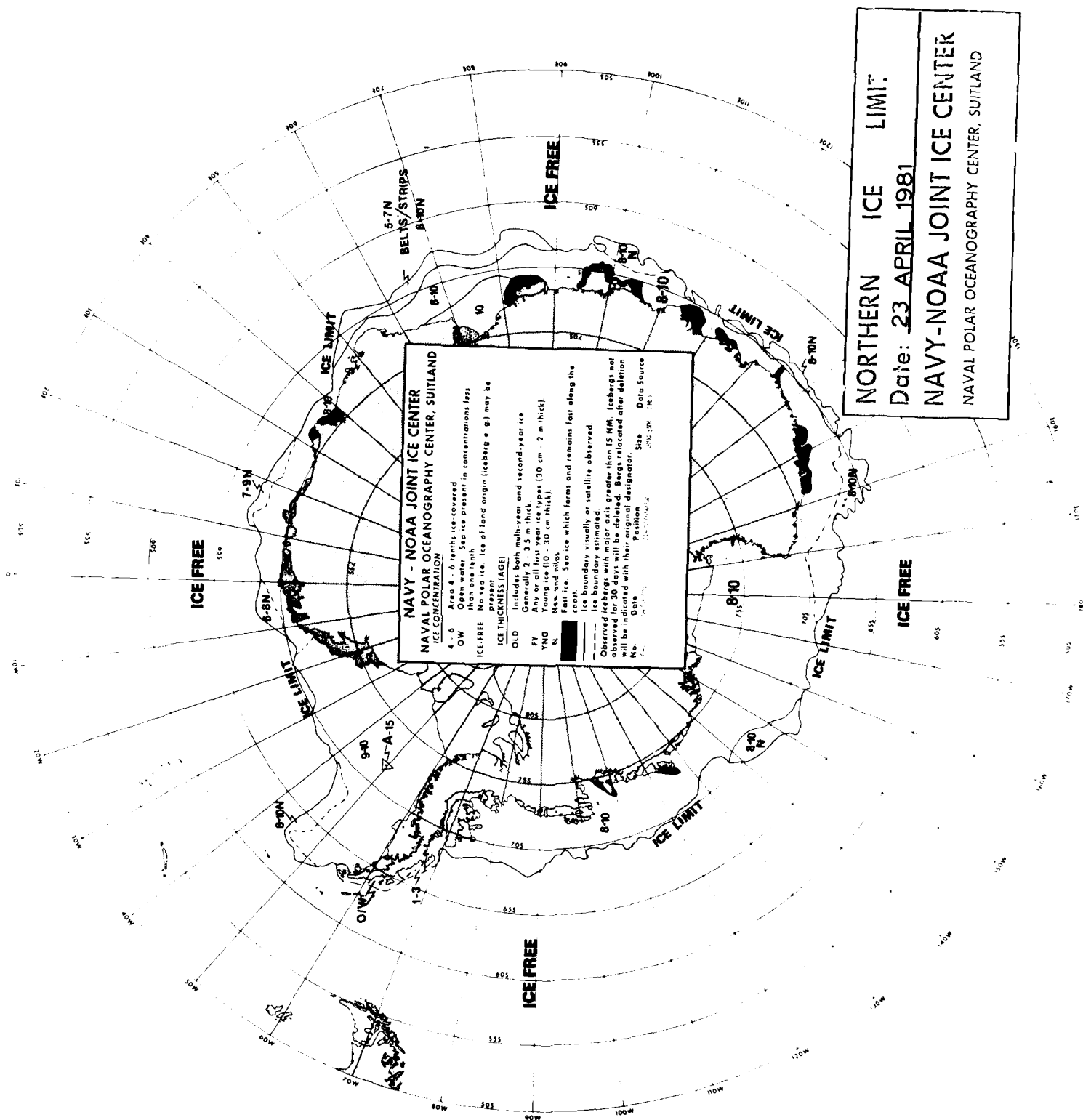
Ice boundary visually or satellite observed
Ice boundary estimated
Observed limits with major axis greater than 15 NM. Icebergs not observed for 30 NM. Icebergs not observed after deletion will be indicated with their original designation

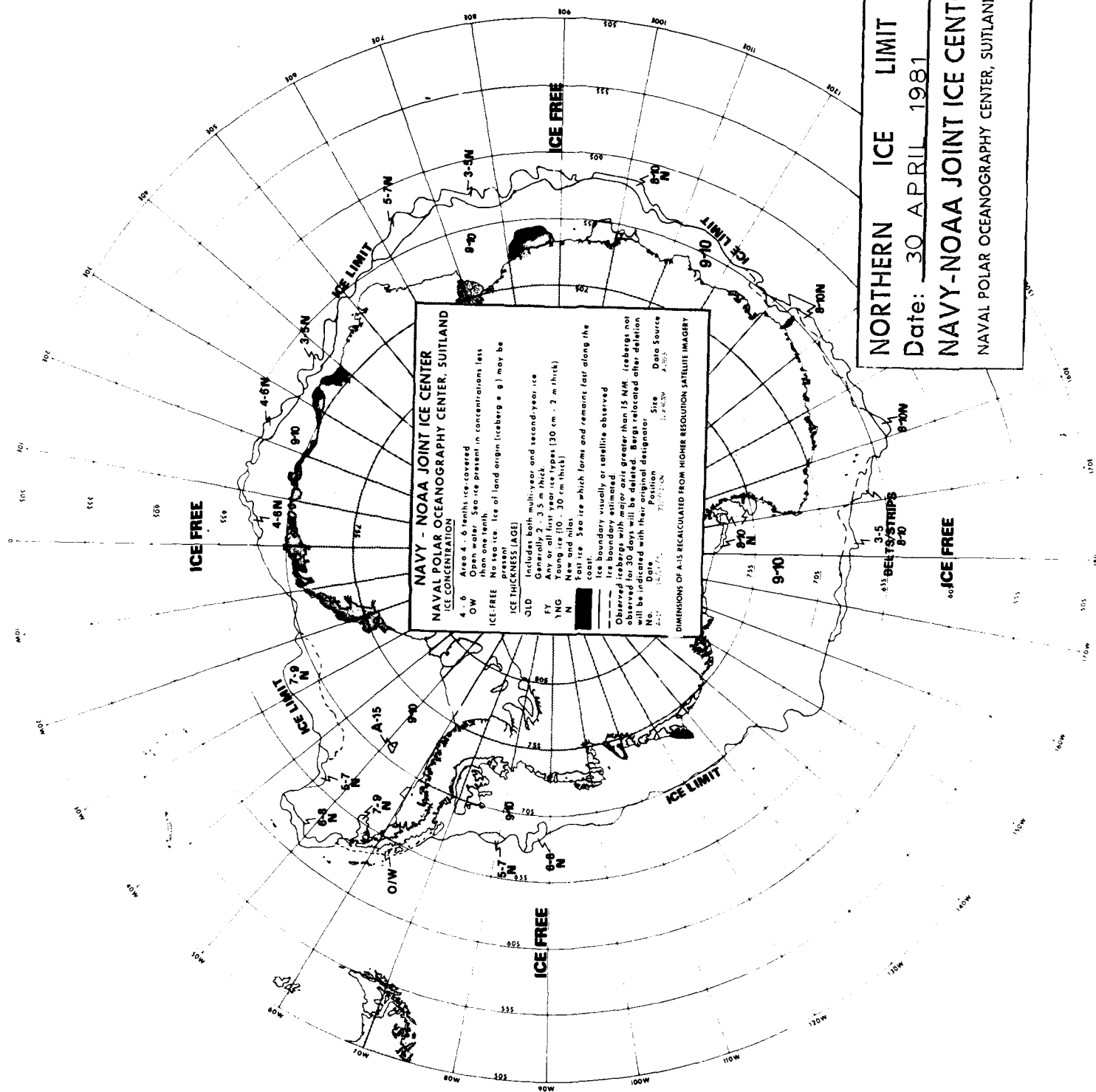
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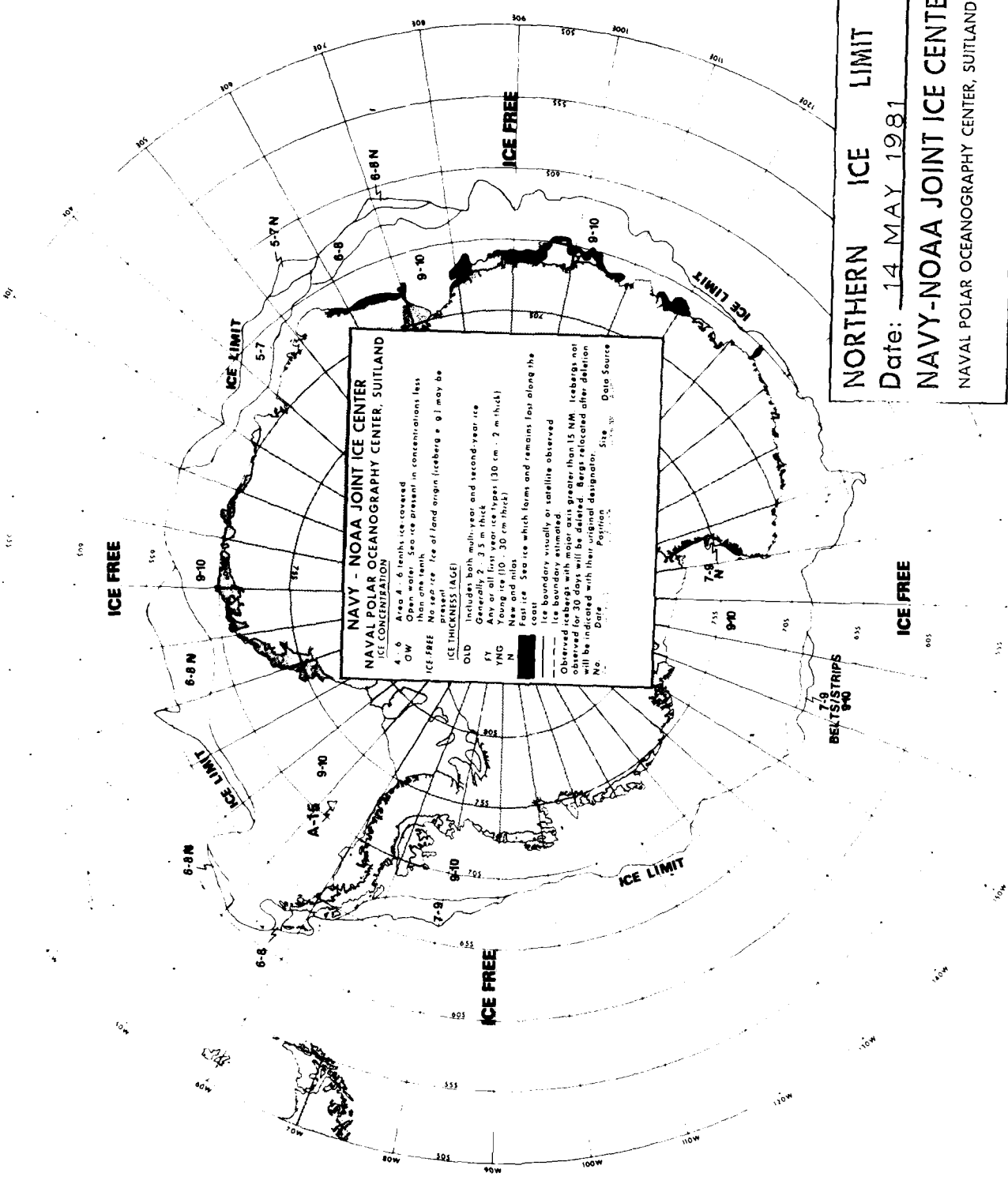
Na Name
Date
Position
Size
Data Source

NORTHERN ICE LIMIT
Date: 16 APRIL 1981
NAVY-NOAA JOINT ICE CENTER
NAVAL POLAR OCEANOGRAPHY CENTER, SUITLAND

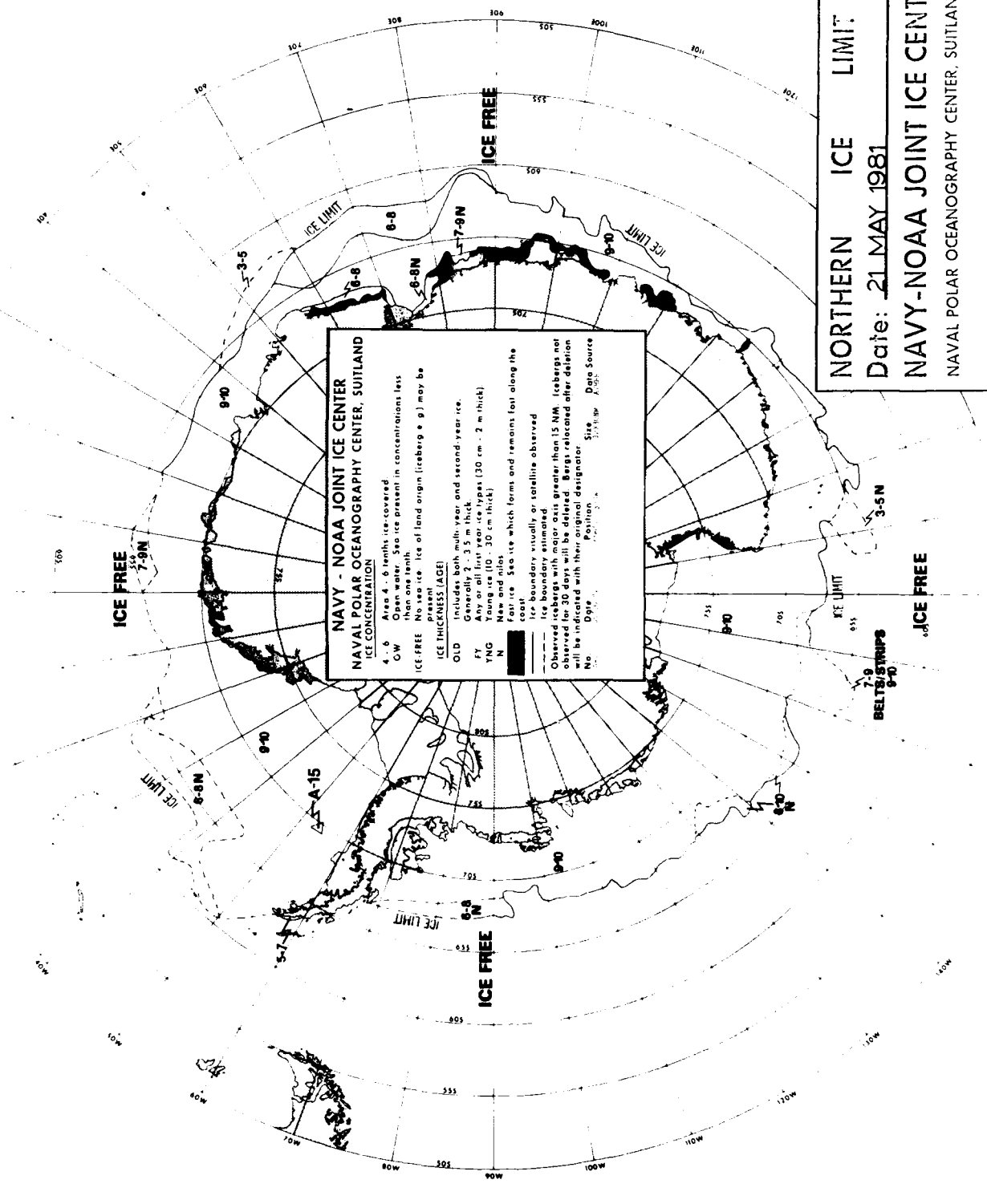








NORTHERN ICE LIMIT
 Date: 14 MAY 1981
NAVY-NOAA JOINT ICE CENTER
 NAVAL POLAR OCEANOGRAPHY CENTER, SUITLAND



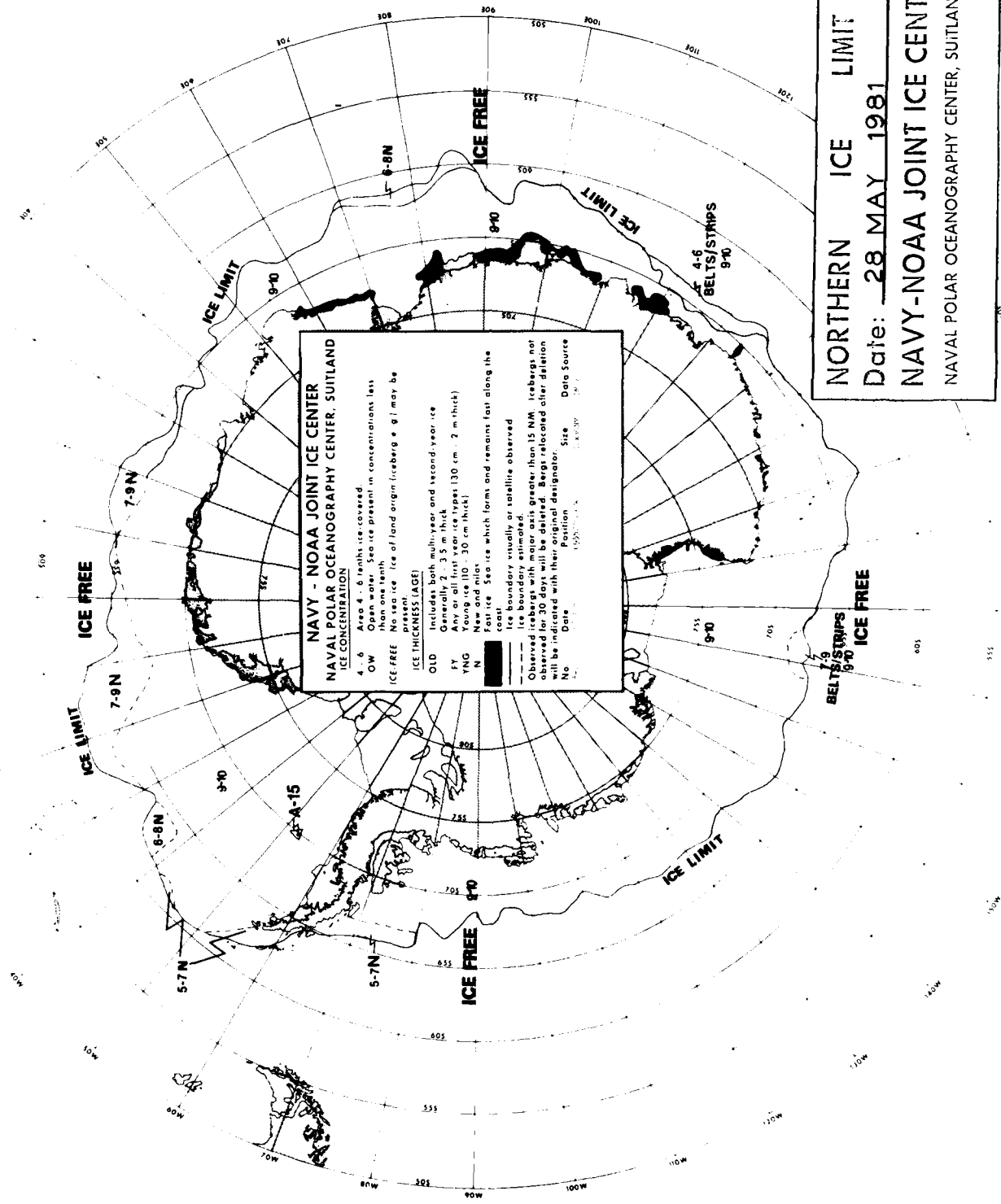
NAVY - NOAA JOINT ICE CENTER
NAVAL POLAR OCEANOGRAPHY CENTER, SUTLAND

ICE CONCENTRATION
 4-6 Area 4 - 6 tenths ice-covered
 O/W Open water. Sea ice present in concentrations less than one tenth
 ICE FREE No sea ice. Ice of land origin (iceberg e.g.) may be present

ICE THICKNESS (AGE)
 OLD Includes both multi-year and second-year ice.
 Generally 2 - 3.5 m thick
 FY Any or all first year ice types (30 cm - 2 m thick)
 YG Young ice (less than 30 cm thick)
 N New ice (less than 30 cm thick)
 Fast ice Sea ice which forms and remains fast along the coast

ICE LIMITS
 Ice boundary visually or satellite observed
 Ice boundary estimated
 Observed icebergs with major axis greater than 15 NM. Icebergs not observed for 30 days will be deleted. Berge relocated after deletion will be indicated with their original designator. Size Data Source No Date Position

NORTHERN ICE LIMIT
 Date: 21 MAY 1981
NAVY-NOAA JOINT ICE CENTER
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ICE FREE

1-2 BELTS/STRIPS 9-10

6-8 BELTS/STRIPS 9-10

8-8N

5-7N

A-15

9-10

ICE FREE

ICE FREE

9-10

8-8N

ICE LIMIT

9-10

ICE LIMIT

NORTHERN ICE LIMIT

Date: 04 JUNE 1981

NAVY-NOAA JOINT ICE CENTER

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NAVY - NOAA JOINT ICE CENTER
NAVAL POLAR OCEANOGRAPHY CENTER, SUTLAND

ICE CONCENTRATION

4-6 Area 4 - 6 tenths ice covered
OW Open water. Sea ice present in concentrations less than one tenth.
ICE FREE No ice. Ice of land origin (iceberg or gl) may be present.

ICE THICKNESS (AGE)

OLD Includes both multi-year and second-year ice.
Generally 2 - 3.5 m thick.
FY Any or all first year ice types (30 cm - 2 m thick).
YNG Young ice (10 - 30 cm thick).
N New and nilot.

Fail ice Sea ice which forms and remains fast along the coast.

Ice boundary visually or satellite observed.

Ice boundary estimated.

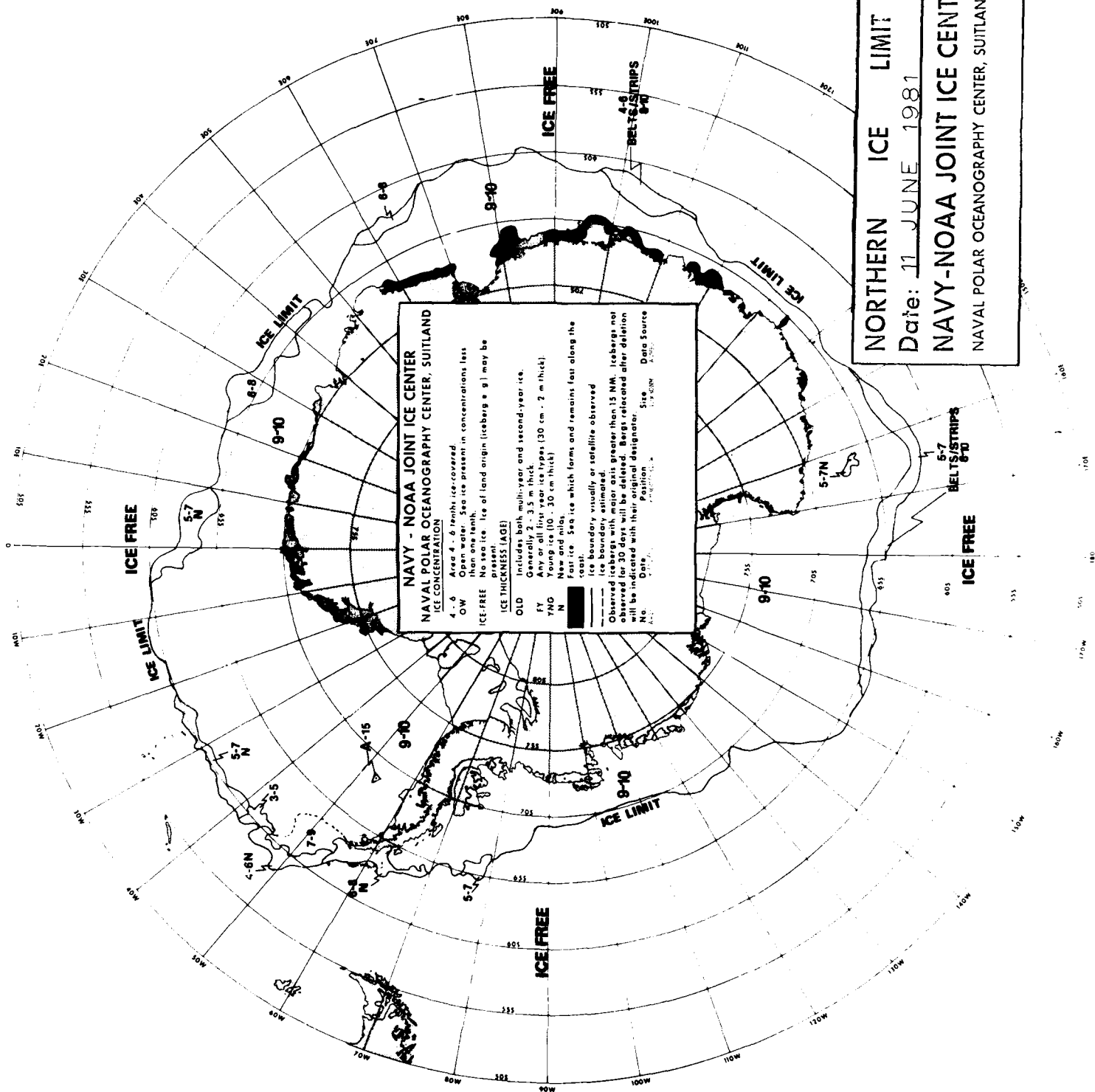
Observed iceberg with major axis greater than 15 NM. Iceberg not observed for 30 days will be deleted. Berge relocated after deletion will be indicated with their original designator.

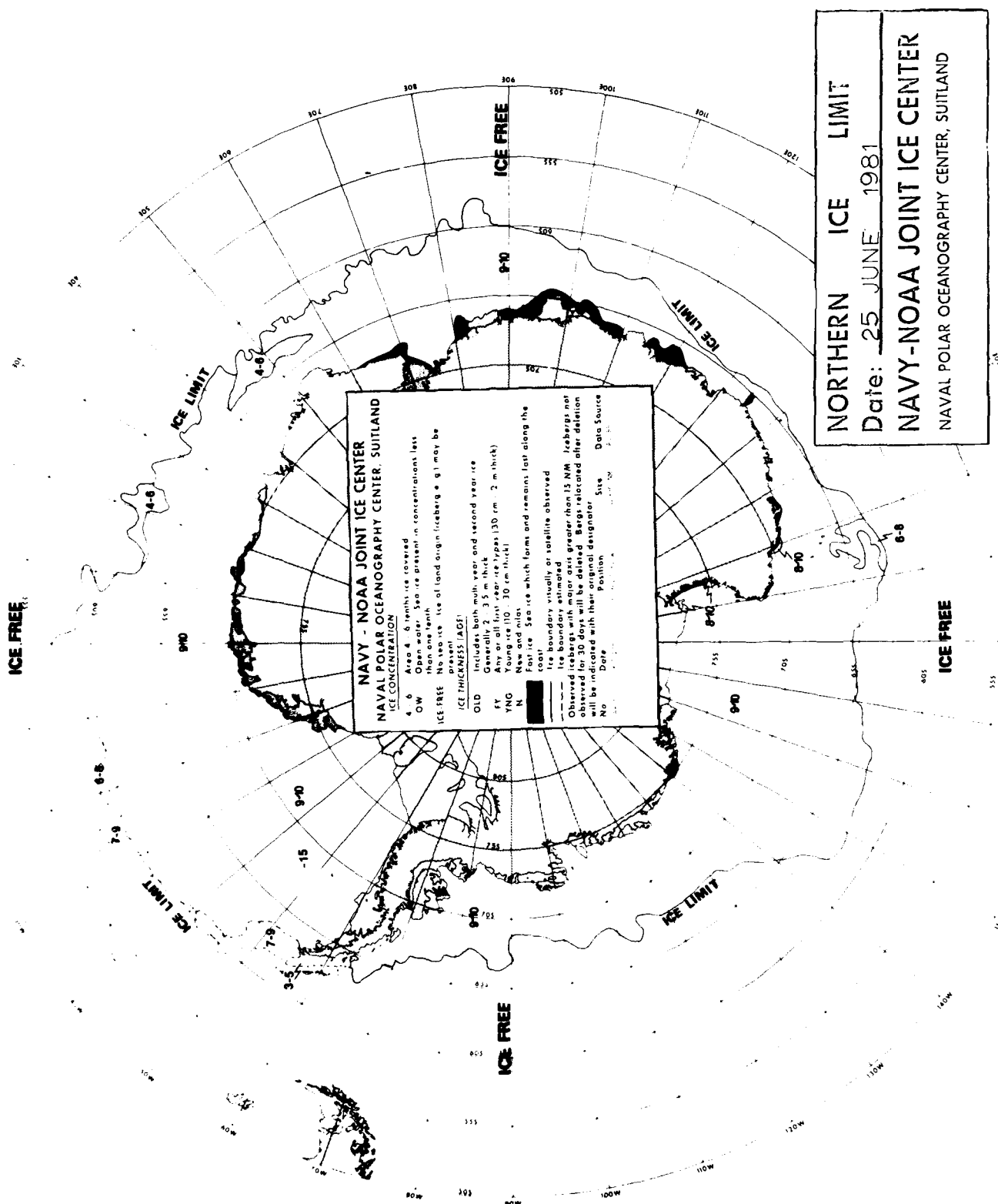
Py. Data Source

4-6 BELTS/STRIPS 9-10

ICE FREE

6-8 BELTS/STRIPS 9-10

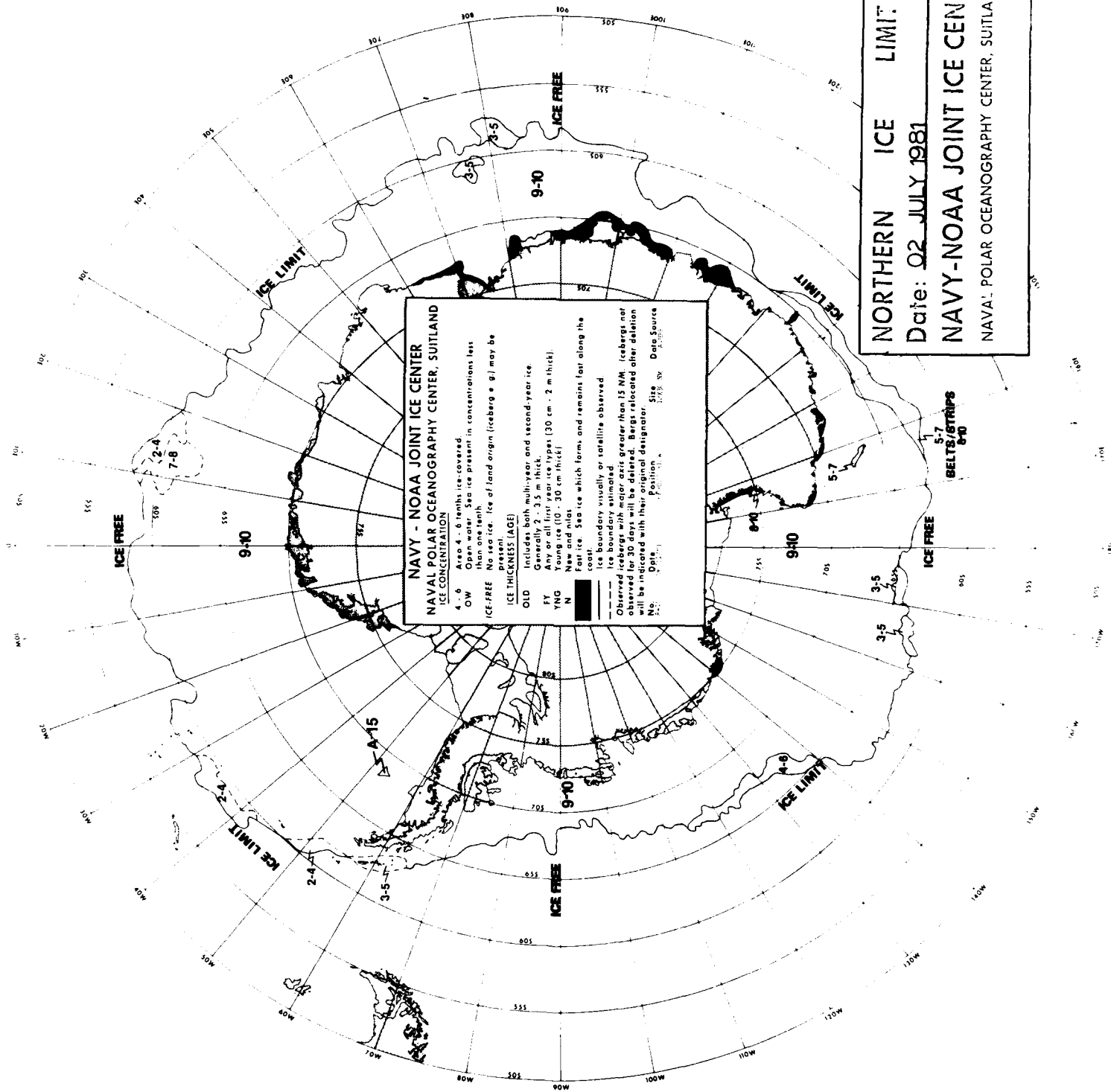


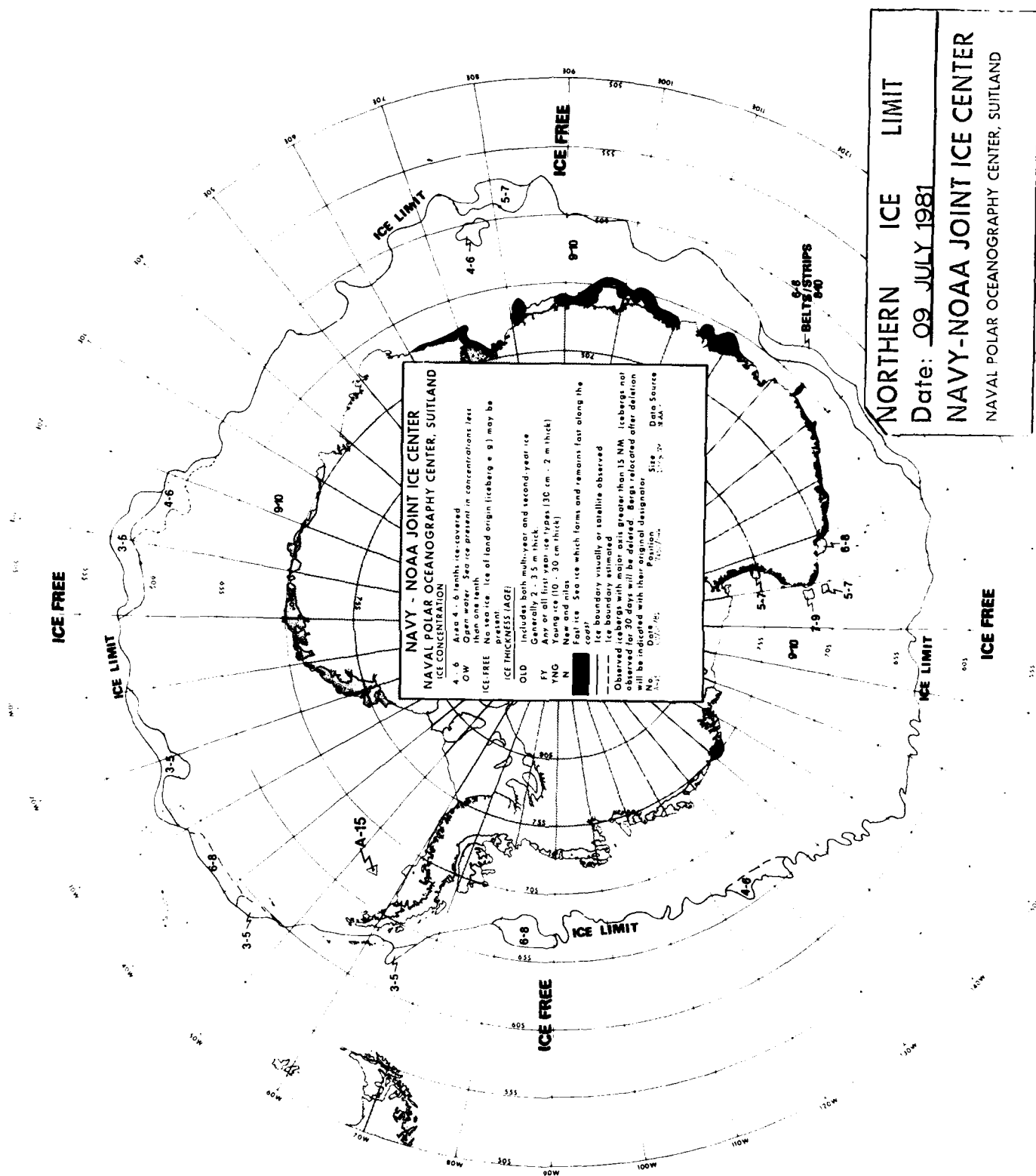


NAVY - NOAA JOINT ICE CENTER
NAVAL POLAR OCEANOGRAPHY CENTER, SUTLAND

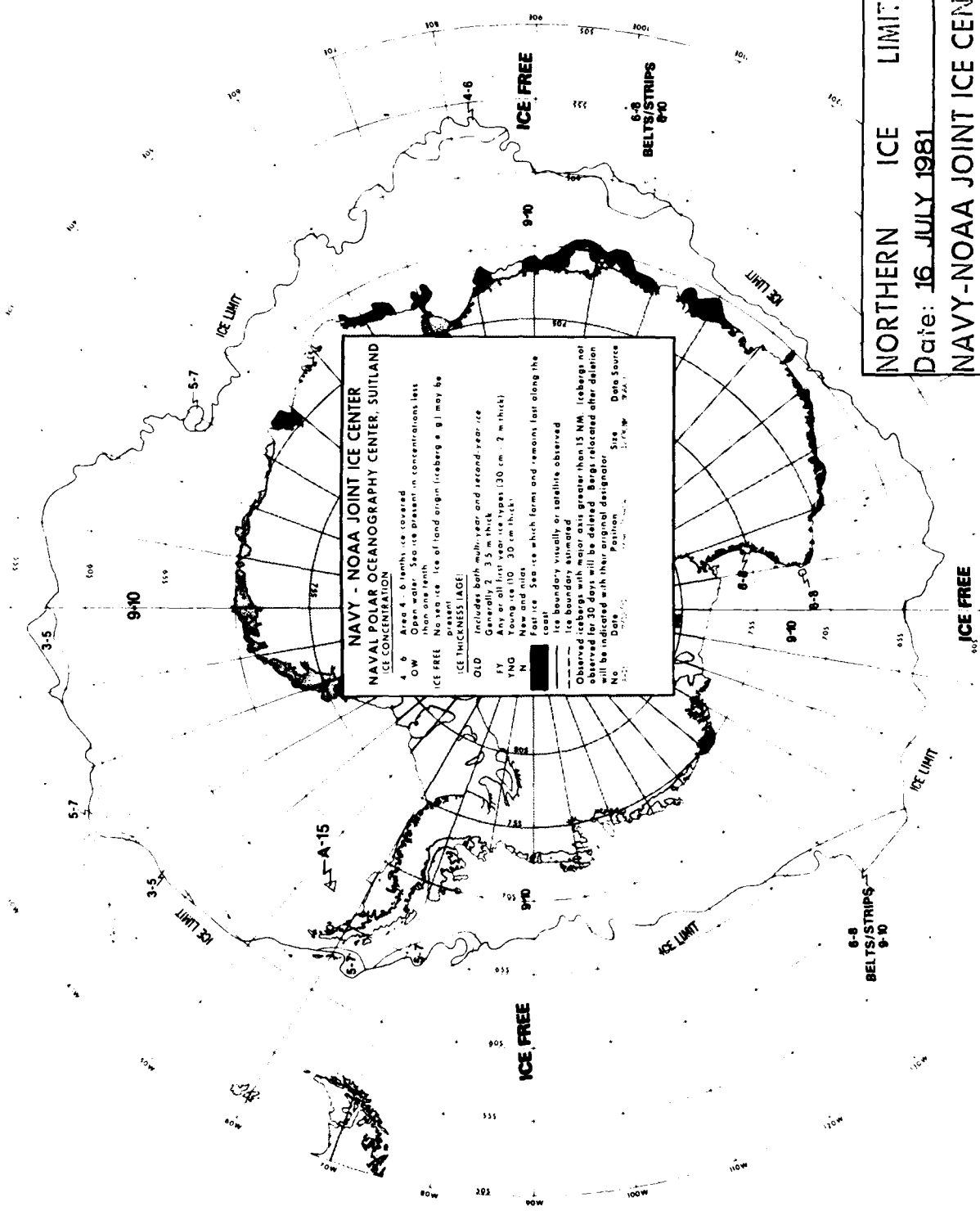
ICE CONCENTRATION
 4-6 Area 4 - 6 tenths ice-covered.
 OW Open water. Sea ice present in concentrations less than 4 tenths.
 ICE-FREE No sea ice. Ice of land origin (iceberg a g) may be present.
ICE THICKNESS (AGE)
 OLD Includes both multi-year and second-year ice. Generally 2-3.5 m thick.
 FY First year ice. Generally 1-2 m thick.
 YNG Young ice (10 - 30 cm thick)
 N New and nilas
 Fast ice Sea ice which forms and remains fast along the coast.
 Ice boundary visually or satellite observed
 Ice boundary estimated
 Observed icebergs greater than 15 NM. Icebergs not observed for 30 days will be deleted after deletion date. Icebergs relocated after deletion will be indicated with their original designation. Site No. Date Position Page of 10
 1-78 SW 1-78 SW 1-78 SW

NORTHERN ICE LIMIT
 Date: 02 JULY 1981
NAVY-NOAA JOINT ICE CENTER
 NAVAL POLAR OCEANOGRAPHY CENTER, SUTLAND





ICE FREE



NAVY - NOAA JOINT ICE CENTER
NAVAL POLAR OCEANOGRAPHY CENTER, SUTLAND

ICE CONCENTRATION

4-6 Area 4 - 6 tenths ice covered
OW Open water Sea ice present in concentrations less than one tenth
ICE FREE No sea ice Ice of land origin (iceberg a g) may be present

ICE THICKNESS (AGE)

OLD Includes both multi-year and second-year ice
Generally 2' - 3' m thick
NY Any or all first year ice types (30 cm - 2 m thick)
YNG New and young ice less than 30 cm thick
N New and young ice less than 30 cm thick
Fm Ice Sea ice which forms and remains fast along the coast

Ice boundary visually or satellite observed
Ice boundary estimated

Observed icebergs with major axis greater than 15 NM (icebergs not observed for 30 days will be deleted) Berge relocated after deletion will be indicated with their original designator

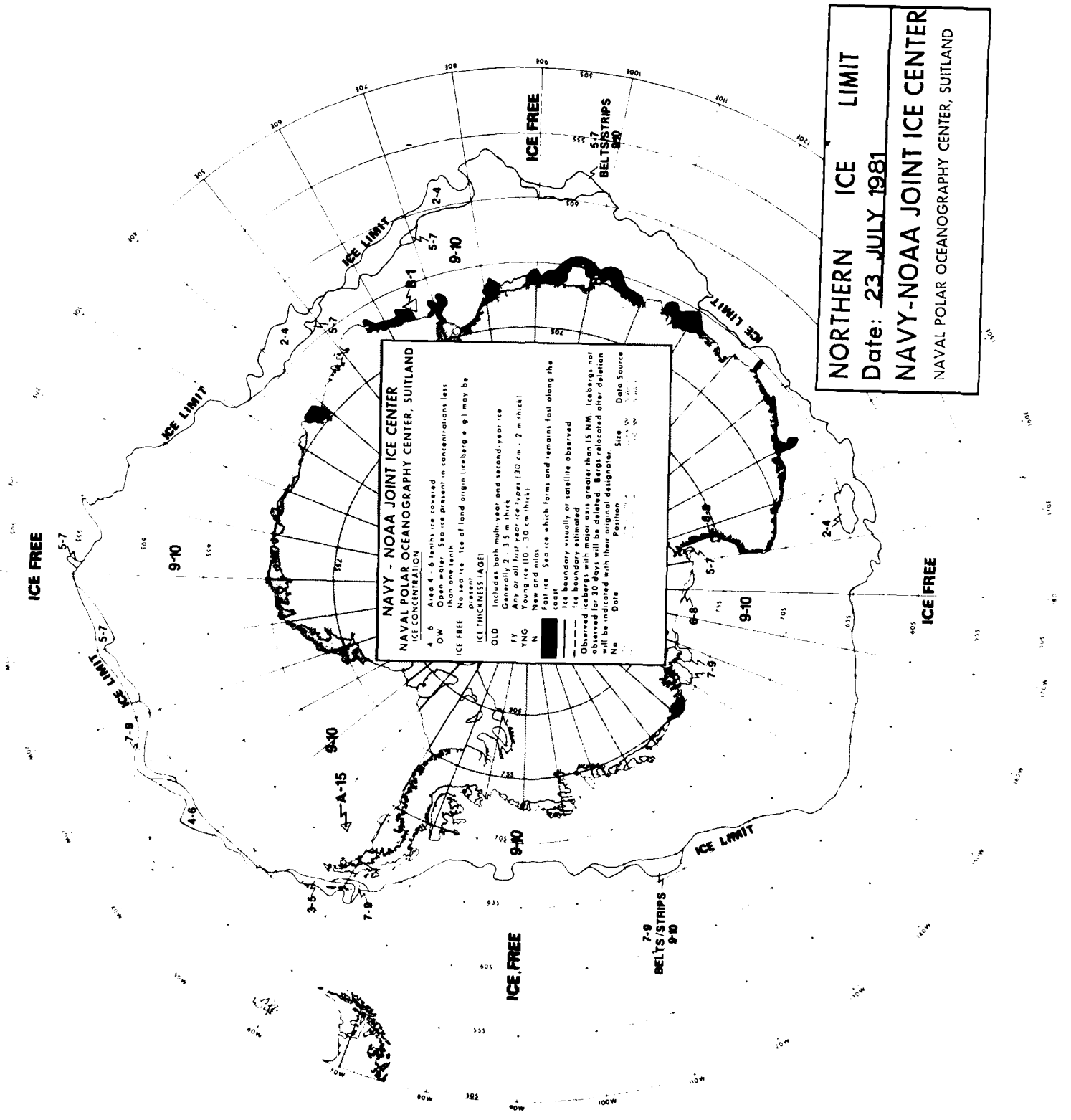
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NORTHERN ICE LIMIT

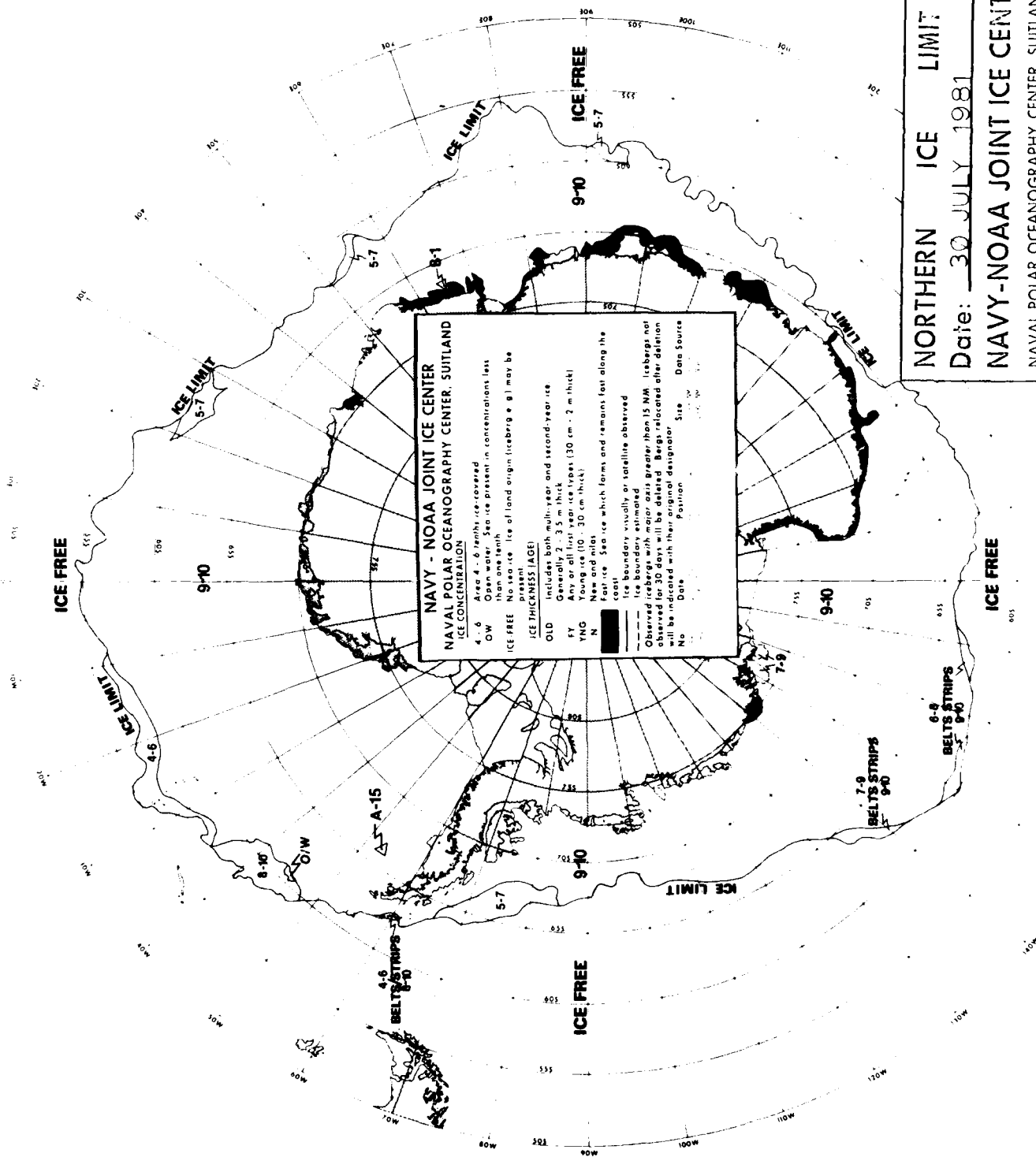
Date: 16 JULY 1981

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NORTHERN ICE LIMIT
Date: 23 JULY 1981
NAVY-NOAA JOINT ICE CENTER
 NAVAL POLAR OCEANOGRAPHY CENTER, SUTLAND



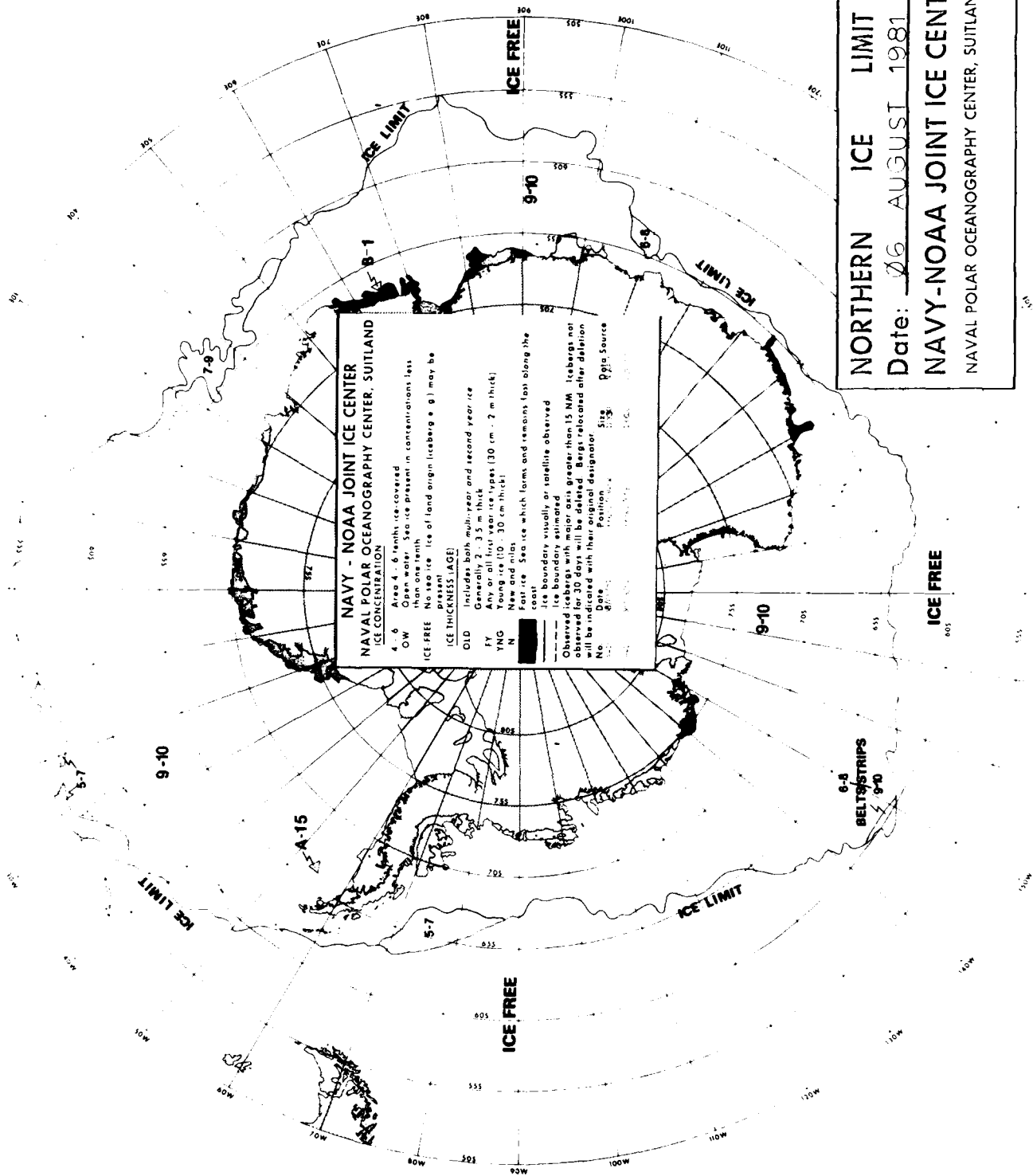
NORTHERN ICE LIMIT

Date: 30 JULY 1981

NAVY-NOAA JOINT ICE CENTER

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ICE FREE



NAVY - NOAA JOINT ICE CENTER
NAVAL POLAR OCEANOGRAPHY CENTER, SUTLAND

ICE CONCENTRATION

4 - 6 Area 4 - 6 tenths ice-covered
OW Open water. Sea ice present in concentrations less than 10%
ICE FREE No sea ice. Ice of land origin (iceberg & g) may be present

ICE THICKNESS (AGE)

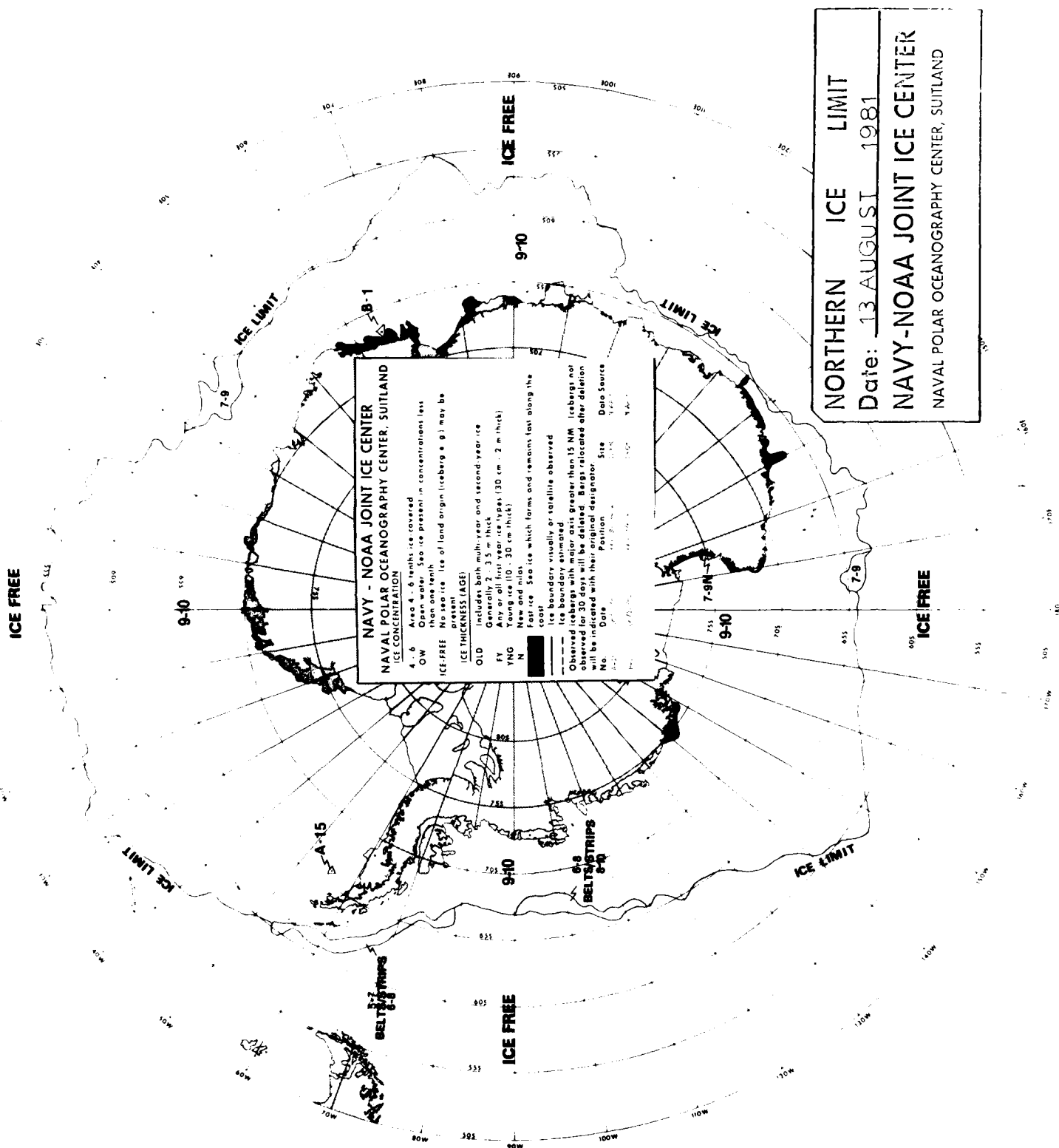
OLD Includes both multi-year and second year ice
Generally 2 - 3.5 m thick
FY Any or all first year ice types (10 cm - 2 m thick)
YNG Young ice (10 - 30 cm thick)
N New and nilas
Fast ice Sea ice which forms and remains fast along the coast

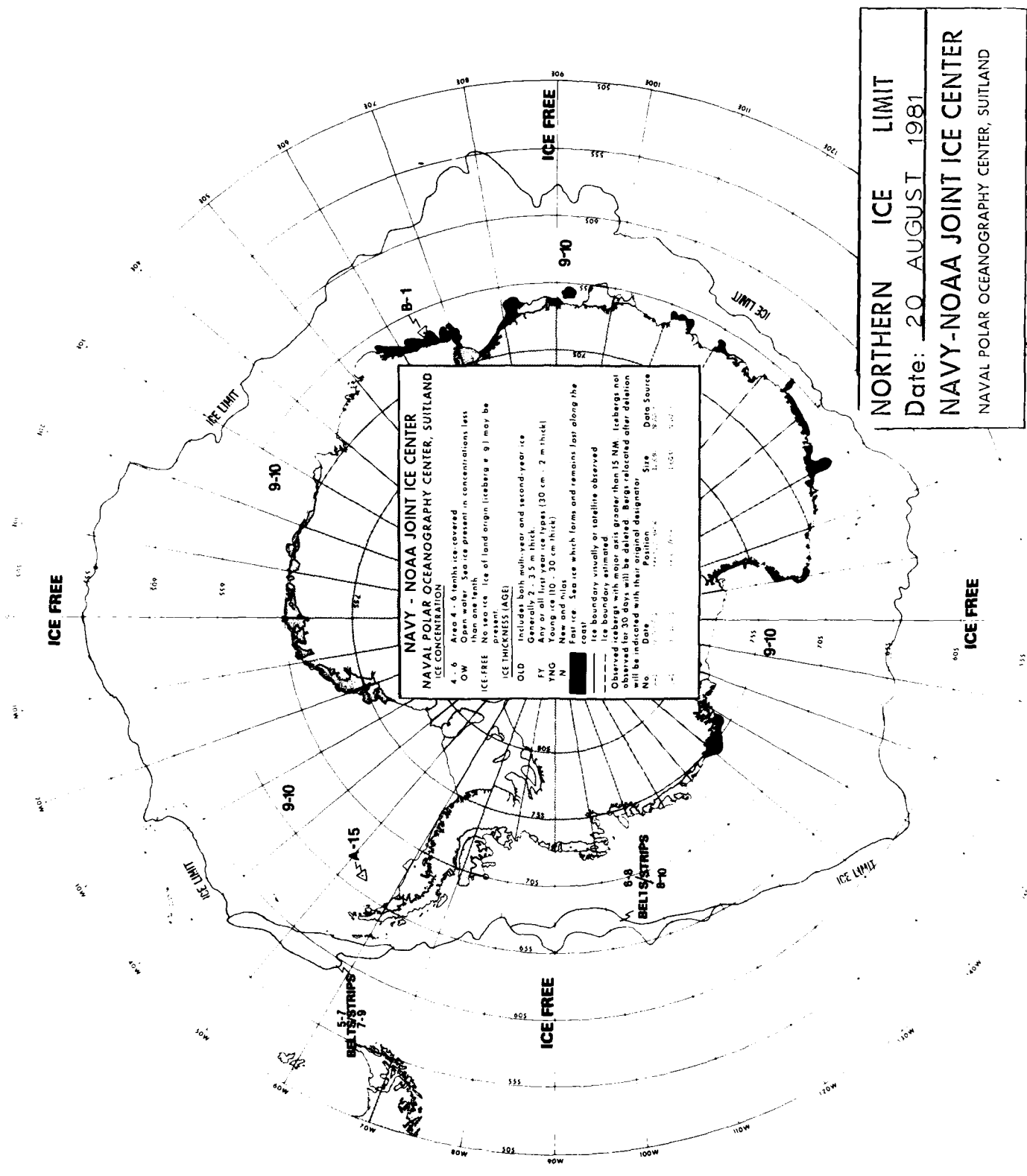
ICEBERGS

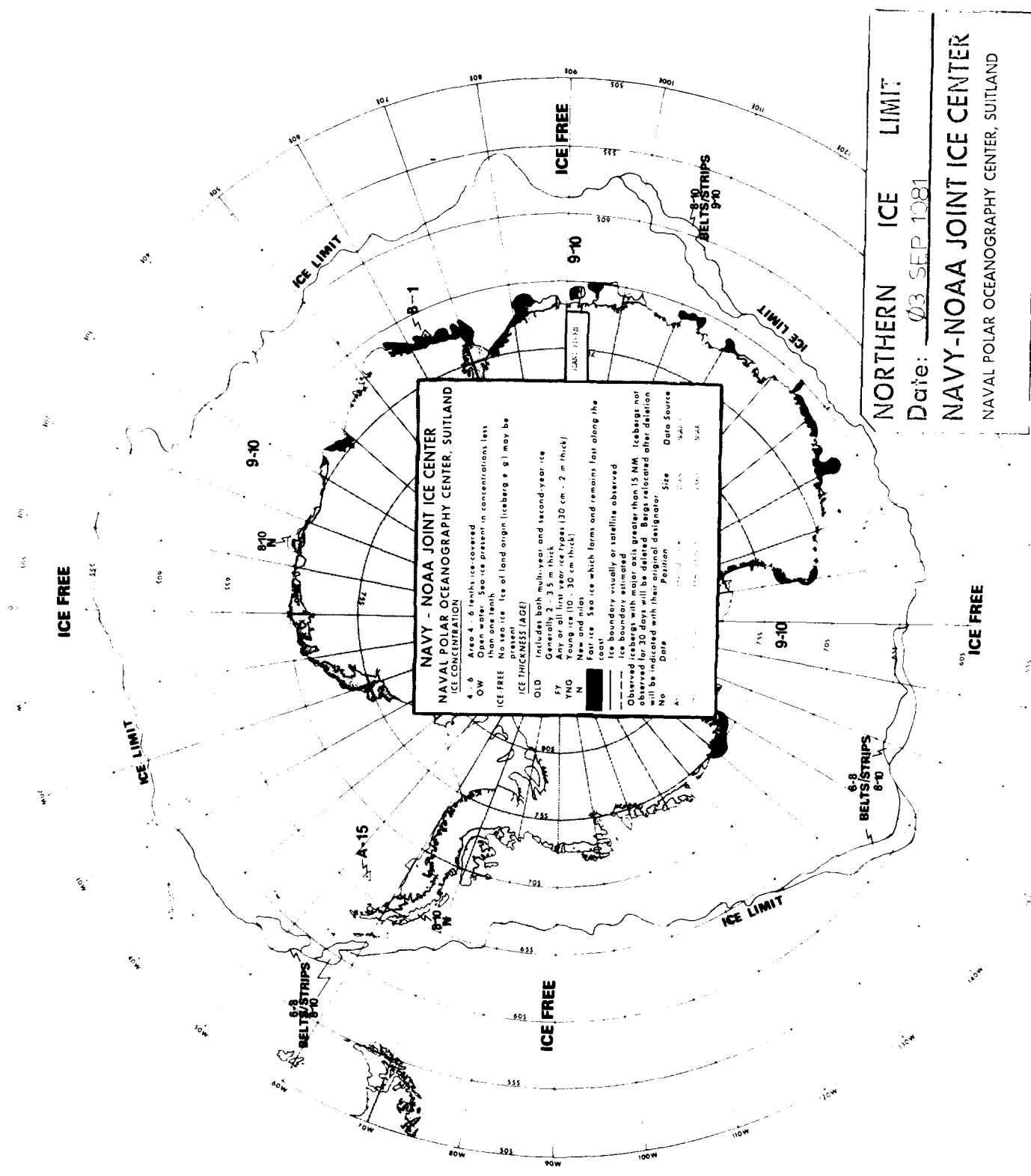
Ice boundary visually or satellite observed
Icebergs less than 15 NM
Observed icebergs greater than 15 NM
Icebergs not observed for 30 days will be deleted
Icebergs not observed for 30 days will be deleted and other deletion will be indicated with their original designation

No	Date	Position	Size	Pgs	Source
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6	8/1/81	70°N 150°W	100	1	1
7	8/1/81	70°N 150°W	100	1	1
8	8/1/81	70°N 150°W	100	1	1
9	8/1/81	70°N 150°W	100	1	1
10	8/1/81	70°N 150°W	100	1	1
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12	8/1/81	70°N 150°W	100	1	1
13	8/1/81	70°N 150°W	100	1	1
14	8/1/81	70°N 150°W	100	1	1
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43	8/1/81	70°N 150°W	100	1	1
44	8/1/81	70°N 150°W	100	1	1
45	8/1/81	70°N 150°W	100	1	1
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48	8/1/81	70°N 150°W	100	1	1
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77	8/1/81	70°N 150°W	100	1	1
78	8/1/81	70°N 150°W	100	1	1
79	8/1/81	70°N 150°W	100	1	1
80	8/1/81	70°N 150°W	100	1	1
81	8/1/81	70°N 150°W	100	1	1
82	8/1/81	70°N 150°W	100	1	1
83	8/1/81	70°N 150°W	100	1	1
84	8/1/81	70°N 150°W	100	1	1
85	8/1/81	70°N 150°W	100	1	1
86	8/1/81	70°N 150°W	100	1	1
87	8/1/81	70°N 150°W	100	1	1
88	8/1/81	70°N 150°W	100	1	1
89	8/1/81	70°N 150°W	100	1	1
90	8/1/81	70°N 150°W	100	1	1
91	8/1/81	70°N 150°W	100	1	1
92	8/1/81	70°N 150°W	100	1	1
93	8/1/81	70°N 150°W	100	1	1
94	8/1/81	70°N 150°W	100	1	1
95	8/1/81	70°N 150°W	100	1	1
96	8/1/81	70°N 150°W	100	1	1
97	8/1/81	70°N 150°W	100	1	1
98	8/1/81	70°N 150°W	100	1	1
99	8/1/81	70°N 150°W	100	1	1
100	8/1/81	70°N 150°W	100	1	1

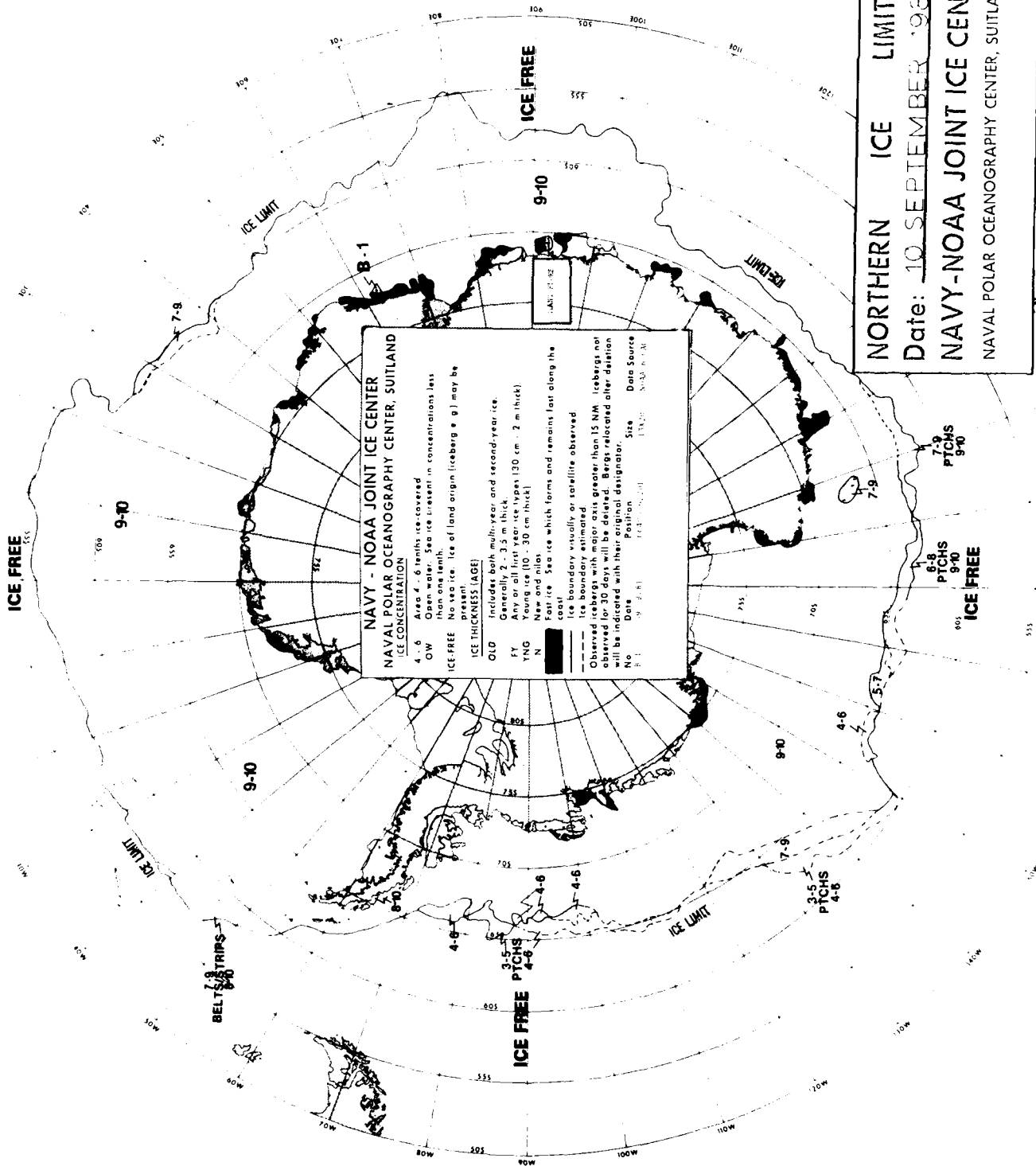
NORTHERN ICE LIMIT
Date: 06 AUGUST 1981
NAVY-NOAA JOINT ICE CENTER
NAVAL POLAR OCEANOGRAPHY CENTER, SUTLAND



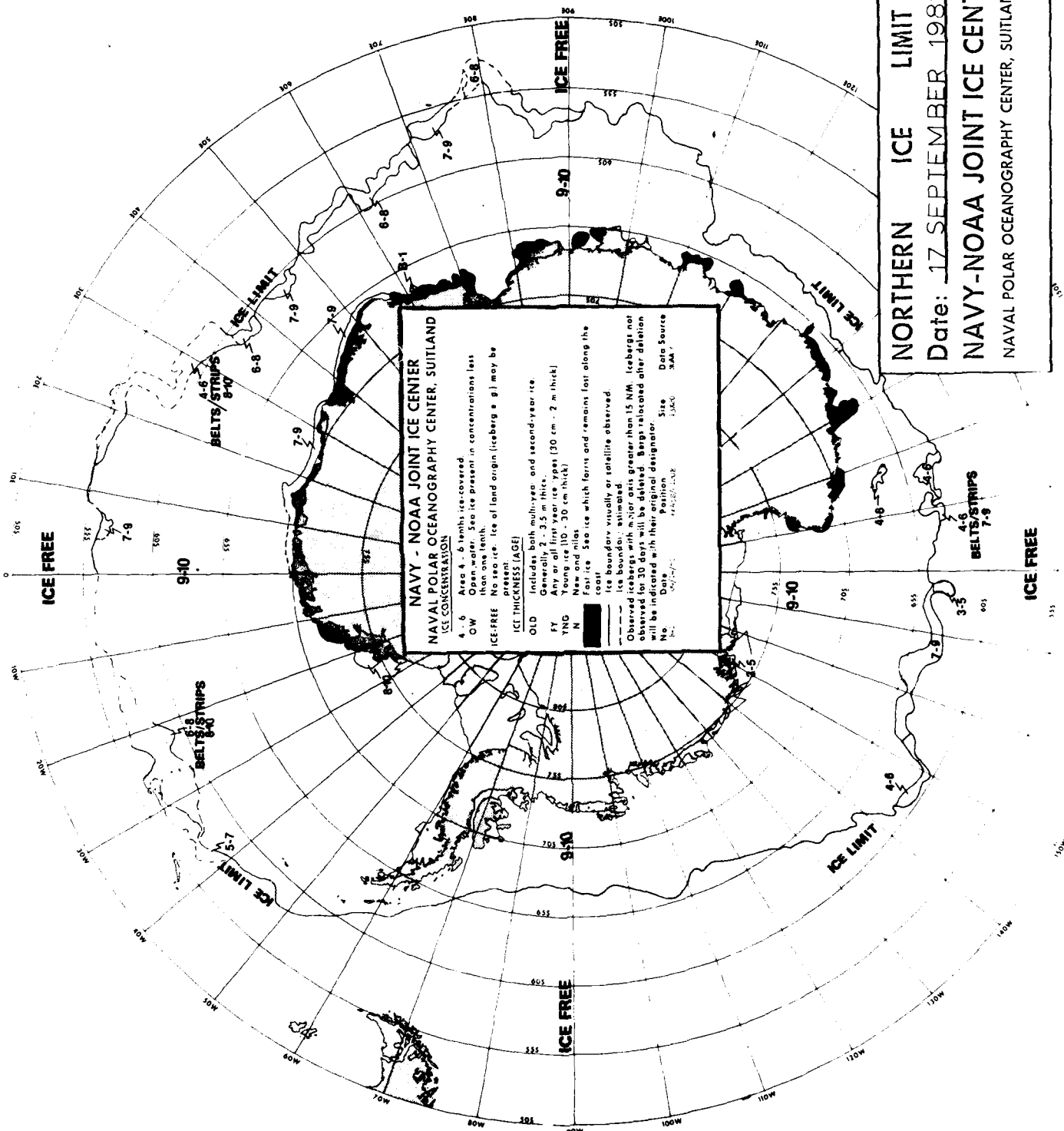




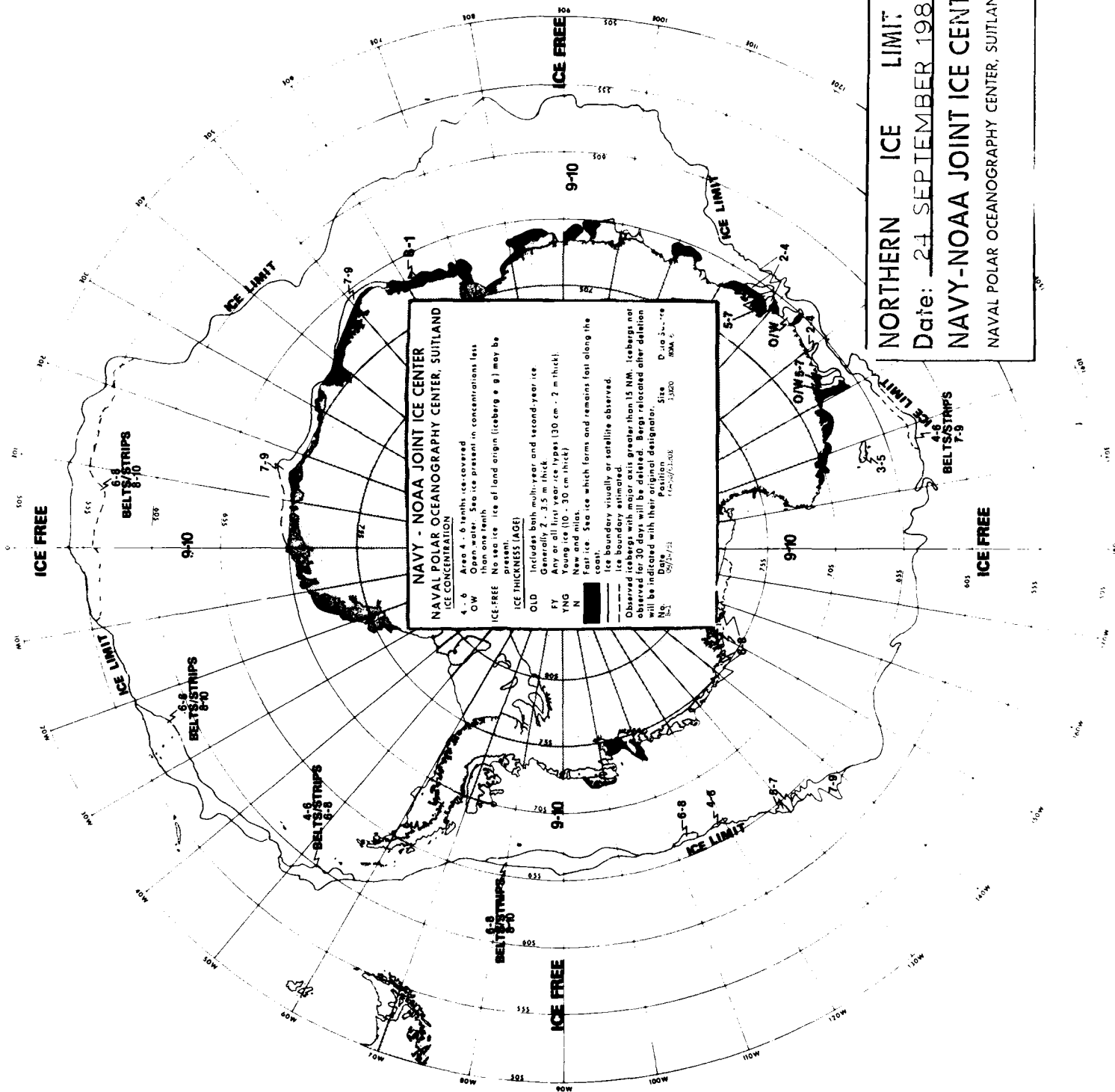
NORTHERN ICE LIMIT
 Date: 03 SEP 1981
NAVY-NOAA JOINT ICE CENTER
 NAVAL POLAR OCEANOGRAPHY CENTER, SUTLAND



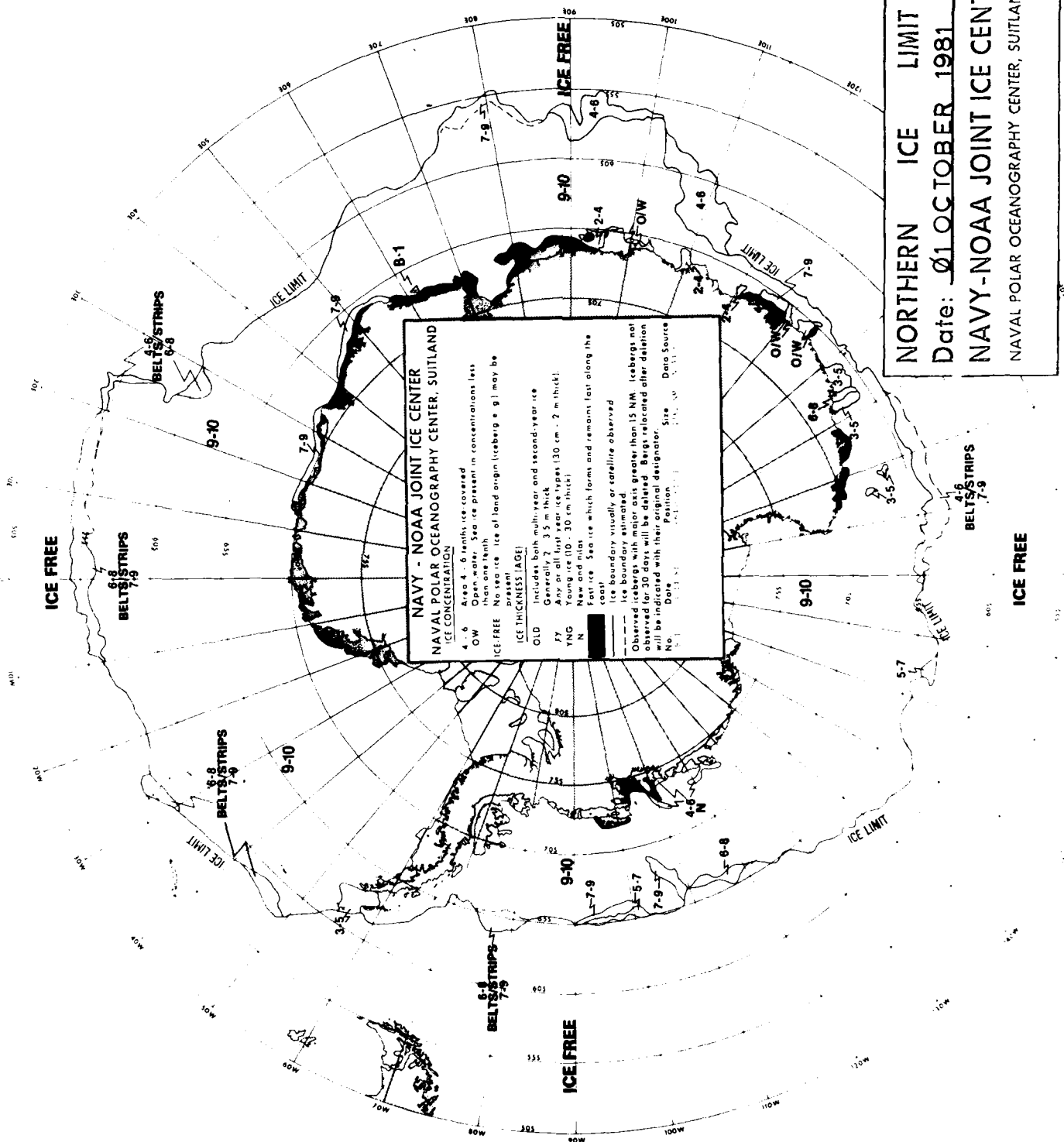
NORTHERN ICE LIMIT
 Date: 10 SEPTEMBER 1981
NAVY-NOAA JOINT ICE CENTER
 NAVAL POLAR OCEANOGRAPHY CENTER, SUITLAND

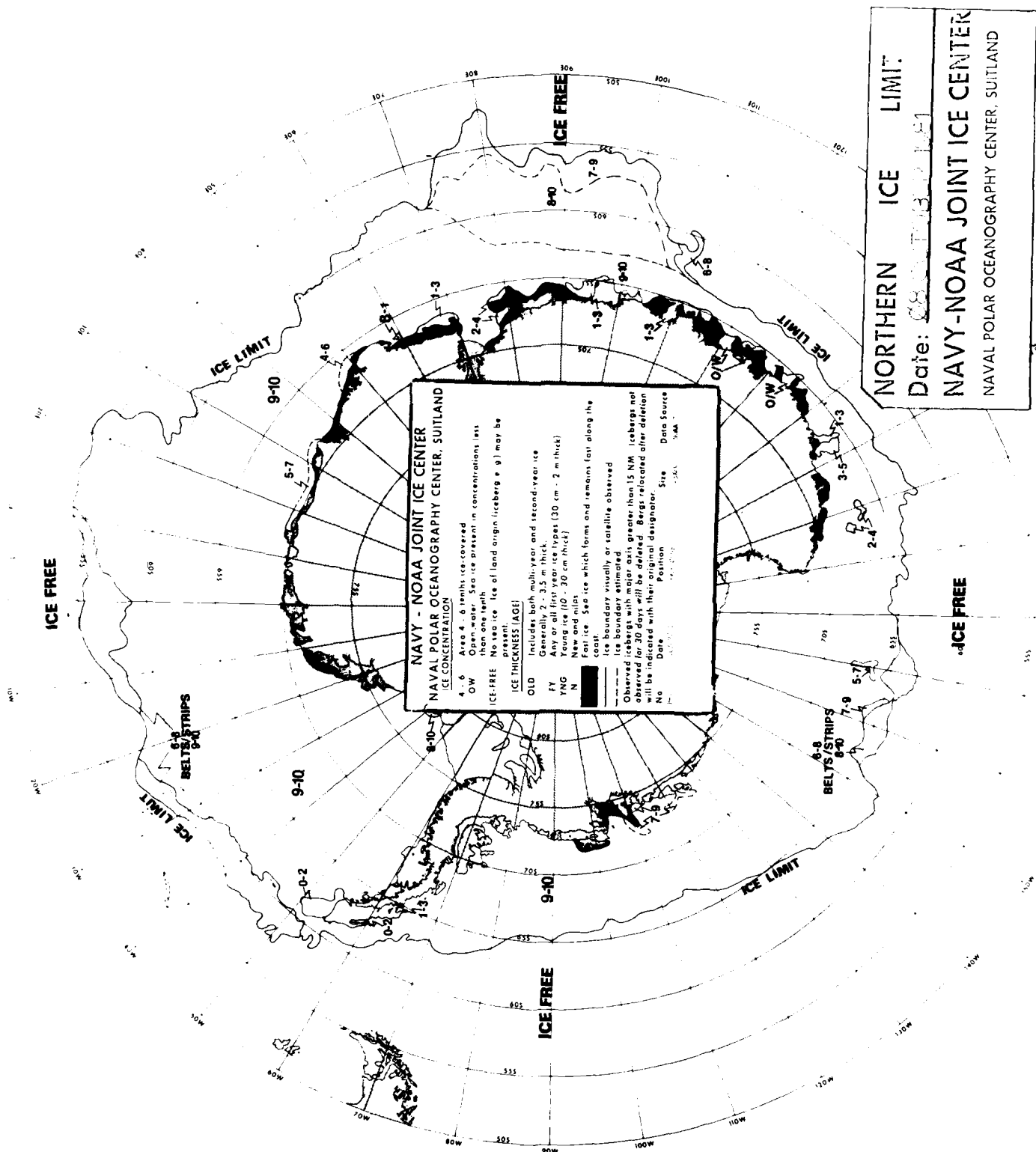


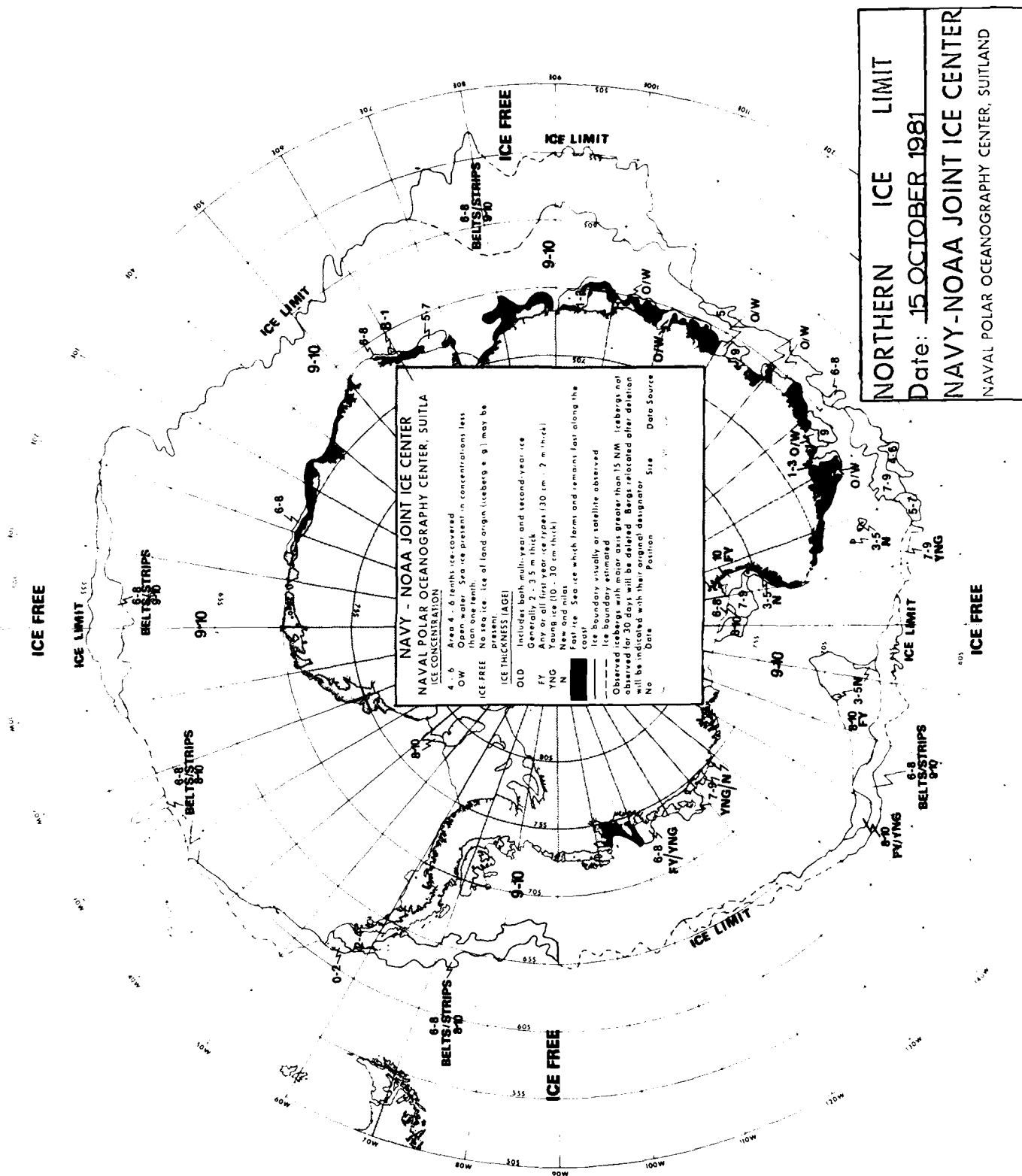
NORTHERN ICE LIMIT
 Date: 17 SEPTEMBER 1981
NAVY-NOAA JOINT ICE CENTER
 NAVAL POLAR OCEANOGRAPHY CENTER, SUITLAND



NORTHERN ICE LIMIT
 Date: 24 SEPTEMBER 1981
NAVY-NOAA JOINT ICE CENTER
 NAVAL POLAR OCEANOGRAPHY CENTER, SUTLAND







ICE FREE

BELTS/STRIPS
8-10

BELTS/STRIPS
8-10

BELTS/STRIPS
8-10

NAVY - NOAA JOINT ICE CENTER NAVAL POLAR OCEANOGRAPHY CENTER, SUITLAND

ICE CONCENTRATION
4-6 Area 4 - 6 tenths ice covered
OW Observed sea ice present in concentrations less than one tenth
ICE FREE No sea ice Ice of land origin (iceberg or gl) may be present
ICE THICKNESS (AGE)
OLD Includes both multi-year and second year ice
Generally 2 - 3 m thick
FY Any or all first year ice (ages 30 cm - 3 m thick)
YNG Young ice (10 - 30 cm thick)
N New and nilas
Fast ice Sea ice which forms and remains fast along the coast
Ice boundary visually or satellite observed
Observed thickness greater than 15 NM Icebergs not observed for 30 days will be deleted. Bergeis related after deletion will be indicated with their original designator
No Date Position Size Data Source

ICE FREE

BELTS/STRIPS
7-9

ICE LIMIT

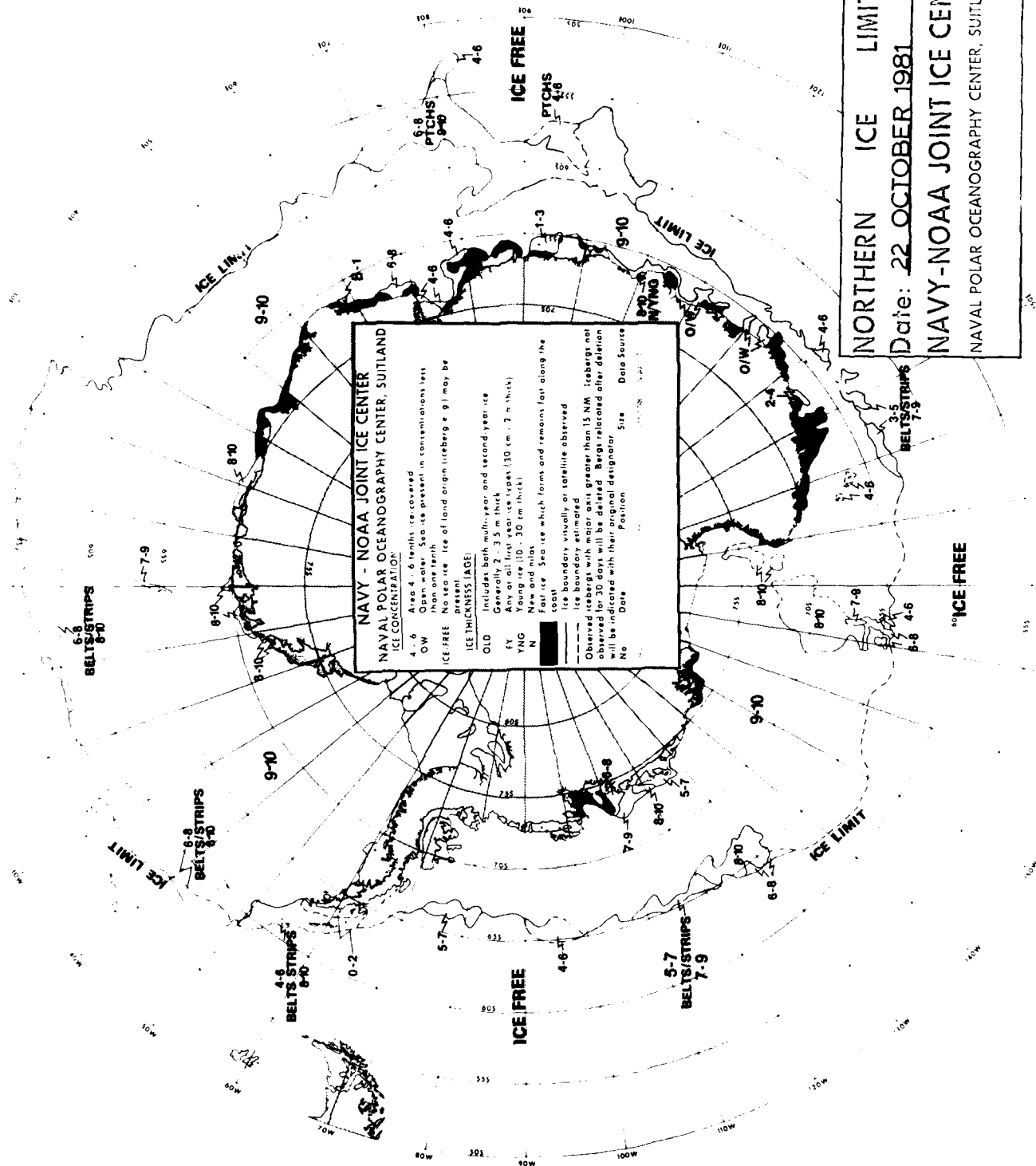
ICE FREE

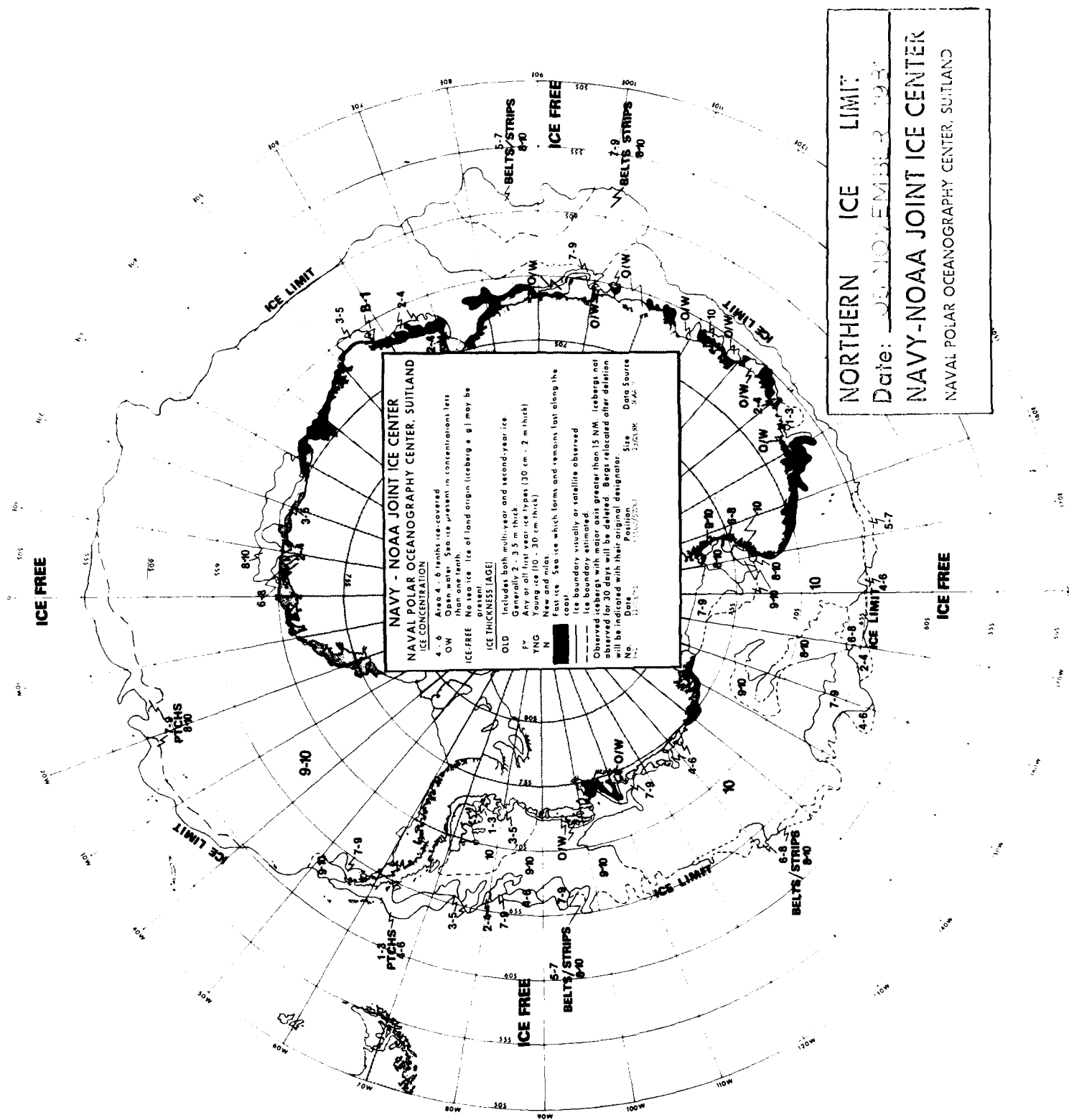
NORTHERN ICE LIMIT

Date: 22 OCTOBER 1981

NAVY-NOAA JOINT ICE CENTER

NAVAL POLAR OCEANOGRAPHY CENTER, SUITLAND





ICE FREE BELTS/STRIPS 2-4 7-9

BELTS/STRIPS 6-8 7-9

STRIPS/BELTS 6-8 8-10

BELTS/STRIPS 7-9 8-10

ICE FREE

BELTS/STRIPS 7-9 8-10

STRIPS/BELTS 6-8 8-10

BELTS/STRIPS 6-8 7-9

STRIPS/BELTS 6-8 8-10

ICE LIMIT

BELTS/STRIPS 6-8 7-9

STRIPS/BELTS 6-8 8-10

BELTS/STRIPS 6-8 7-9

ICE LIMIT

BELTS/STRIPS 6-8 7-9

ICE FREE

NORTHERN ICE LIMIT

Date: 12 NOVEMBER 1981

NAVY-NOAA JOINT ICE CENTER

NAVAL POLAR OCEANOGRAPHY CENTER, SUITLAND

NAVY - NOAA JOINT ICE CENTER
NAVAL POLAR OCEANOGRAPHY CENTER, SUITLAND

ICE CONCENTRATION

4-6 Area 4-6 tenths ice covered
OW Open water Sea ice present in concentration less than one tenth present
ICE FREE No sea ice Ice of land origin (iceberg) may be present

ICE THICKNESS (AGE)

OLD Includes both multi-year and second year ice
FY Generally 2-3.5 m thick
Any or all first year ice types (30 cm 2 m thick)
TNG Young ice (10-30 cm thick)
N New and nilas
F First year ice Sea ice which forms and remains fast along the coast
Ice boundary visually or satellite observed
Ice boundary estimated
Observed icebergs with major axis greater than 15 NM Icebergs not observed for 30 days will be deleted Bergs relocated after deletion will be indicated with their original designator

No Date Position Size Data source

ICE FREE

BELTS/STRIPS
7-9
8-10

BELTS/STRIPS
8-8
7-9

BELTS/STRIPS
6-8
8-10

PITCHES
5-7
8-8

BELTS/STRIPS
2-4
3-5
4-6

BELTS/STRIPS
3-5
7-9

ICE FREE

ICE FREE

ICE LIMIT

ICE LIMIT

ICE FREE

BELTS/STRIPS
3-5
7-9

NORTHERN ICE LIMIT

Date: 10/1/79

NAVY-NOAA JOINT ICE CENTER

NAVAL POLAR OCEANOGRAPHY CENTER, SUTLAND

NAVY - NOAA JOINT ICE CENTER
NAVAL POLAR OCEANOGRAPHY CENTER, SUTLAND

ICE CONCENTRATION

4-6 Area 4-6 months ice covered

OW Open water. Sea ice present in concentrations less than one tenth.

ICE FREE No sea ice. Ice of land origin (iceberg or gl) may be present.

ICE THICKNESS (AGE)

OLD Includes both multi-year and second-year ice.

FY Generally 2-3.5 m thick.

NY Any or all first year ice types (10 cm - 2 m thick).

YNG Young ice 10 - 30 cm thick.

N New and nilas.

Fast ice Sea ice which forms and remains fast along the coast.

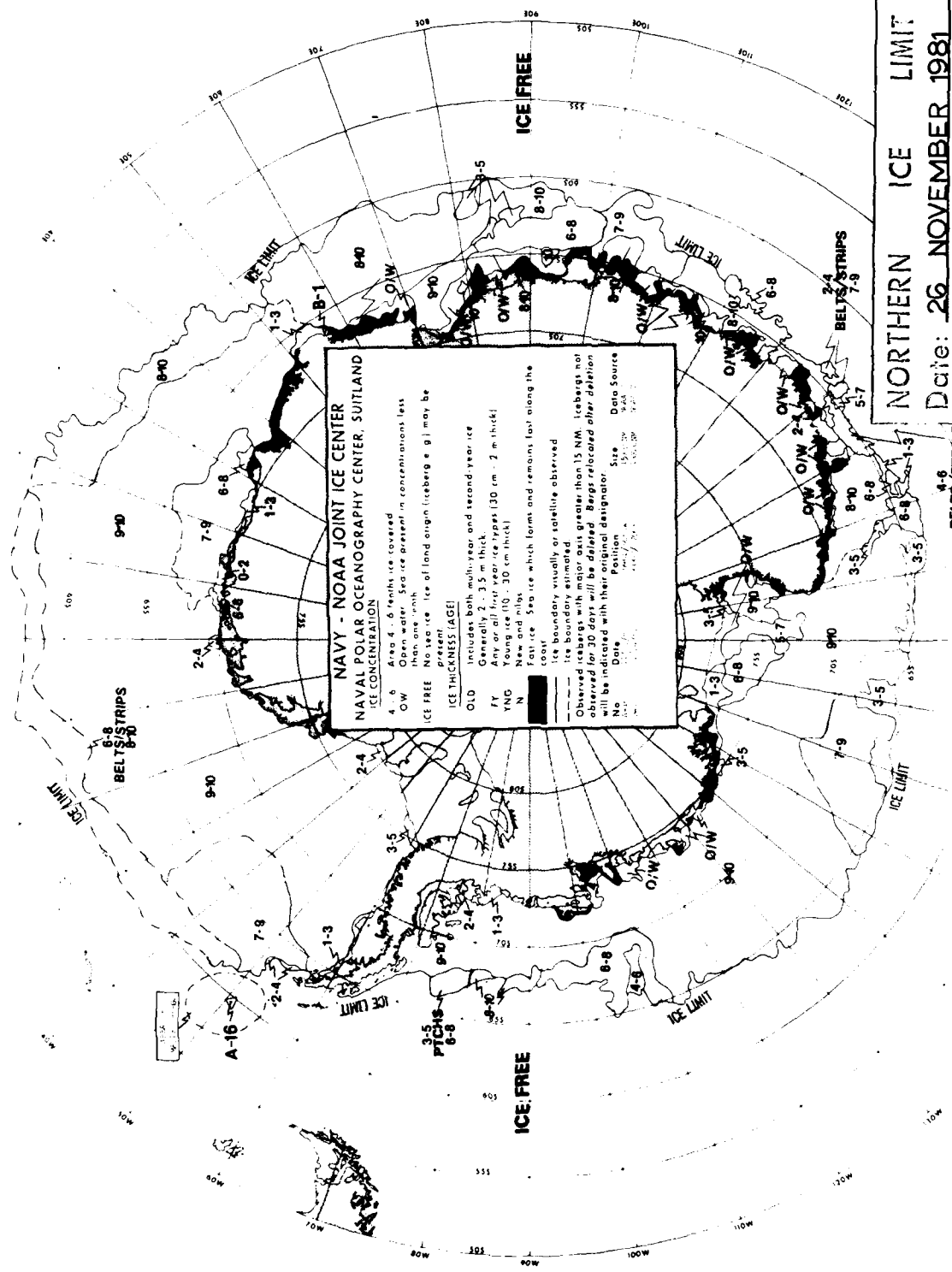
Ice boundary visually or satellite observed.

Ice boundary visually or satellite observed.

Observed icebergs with major axis greater than 15 NM. Icebergs not observed for 30 days will be deleted. Major icebergs after deletion will be indicated with their original designator.

No Date Position Size Data Source

ICE FREE



NAVY - NOAA JOINT ICE CENTER
NAVAL POLAR OCEANOGRAPHY CENTER, SUTLAND

ICE CONCENTRATION

4-6 Any 4, 5, 6 fronts ice covered
OW Open water. Sea ice present in concentrations less than one inch
ICE FREE No sea ice. Ice of land origin (iceberg, etc.) may be present

ICE THICKNESS (AGE)

OLD Includes both multi-year and second-year ice
Generally 2 - 3.5 m thick
FY Any or all first year ice types (30 cm - 2 m thick)
YNG Young ice (10 - 30 cm thick)
N New and nilas
Fast ice Sea ice which forms and remains fast along the coast
Ice boundary visually as satellite observed
Ice boundary estimated
Observed icebergs with major axis greater than 15 NM. Icebergs not observed for 30 days will be deleted. Bergs relocated after deletion will be indicated with their original designator

Date
Position
Size
Data Source

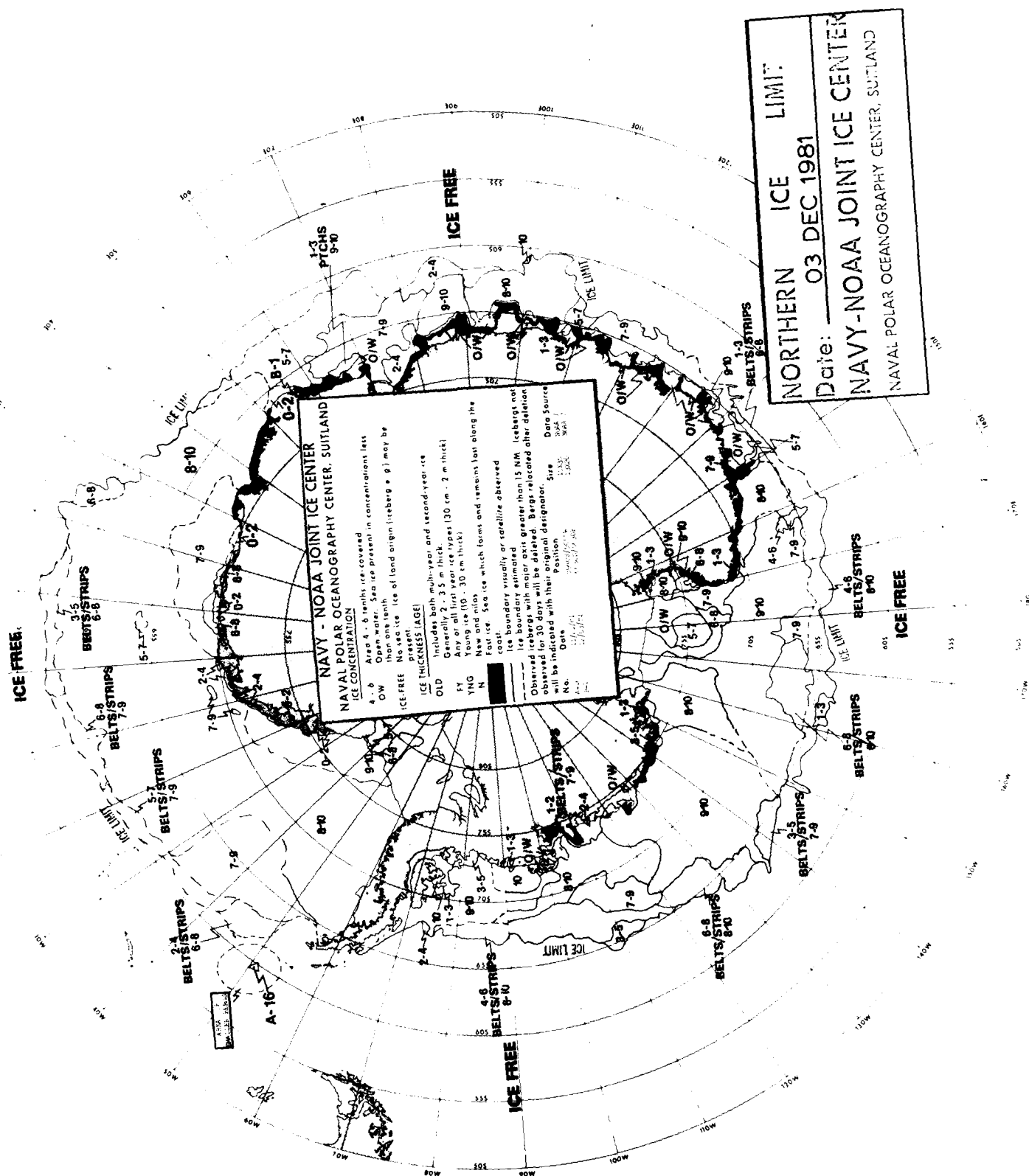
NORTHERN ICE LIMIT

Date: **26 NOVEMBER 1981**

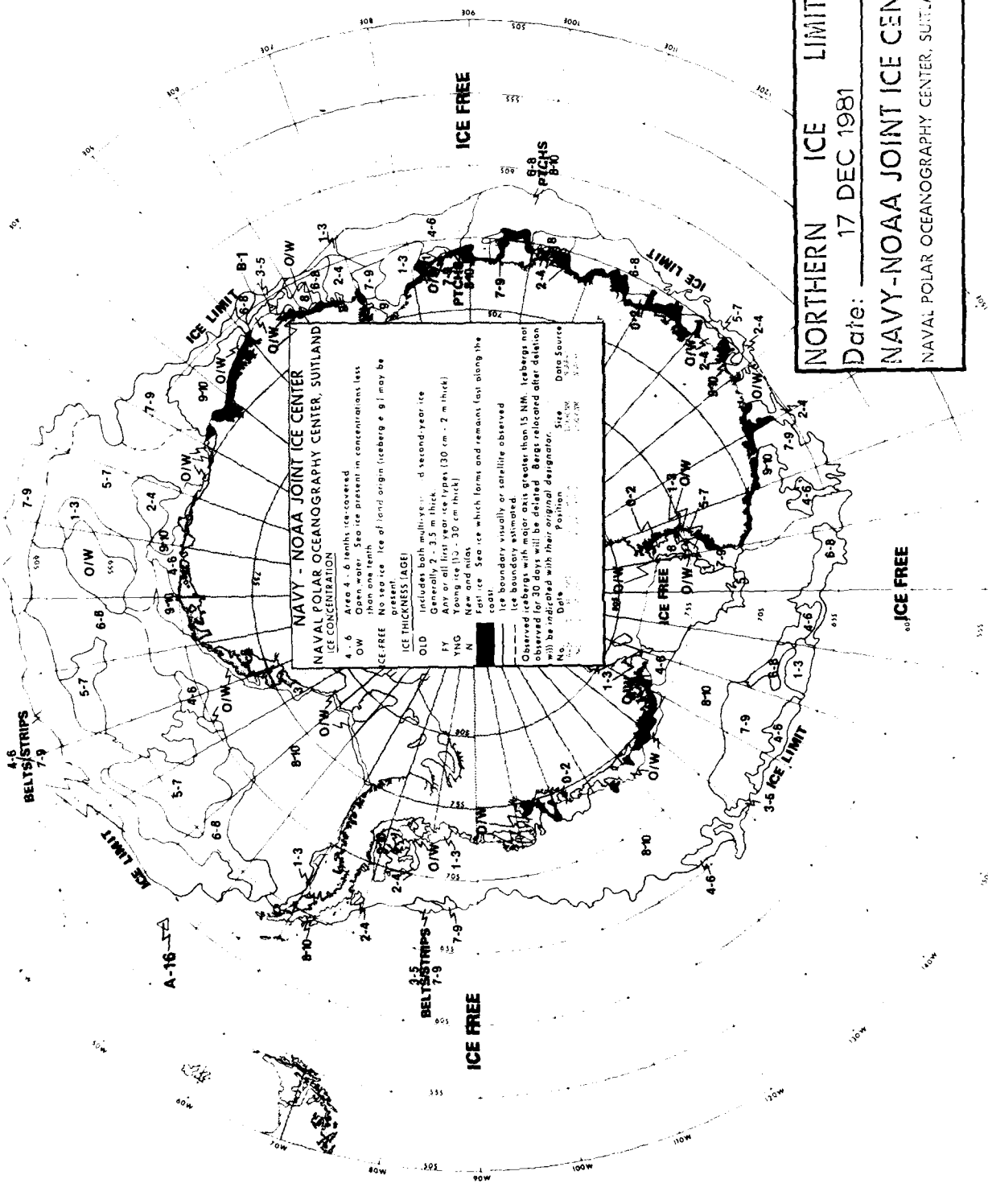
NAVY-NOAA JOINT ICE CENTER

NAVAL POLAR OCEANOGRAPHY CENTER, SUTLAND

ICE FREE



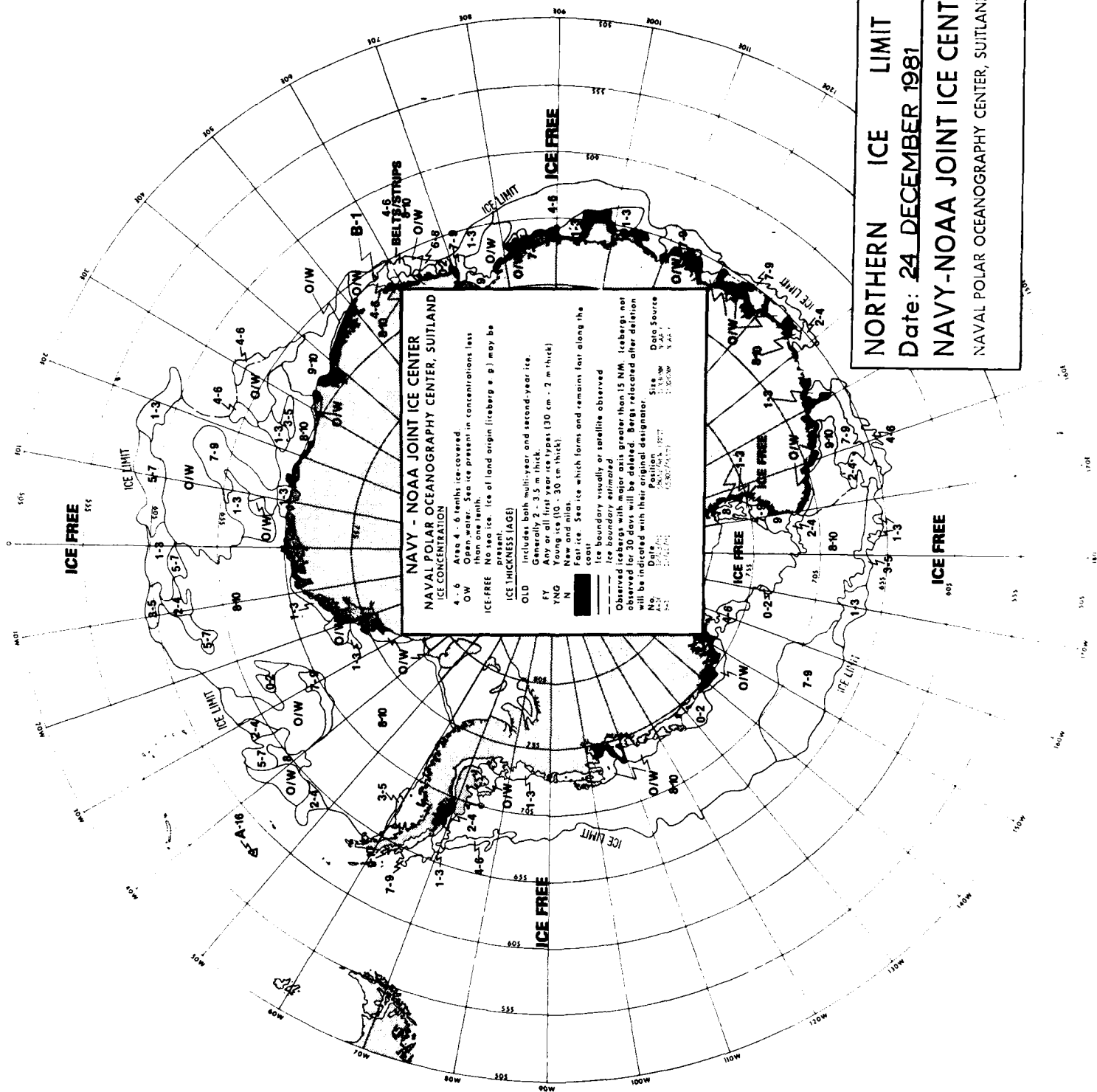
ICE FREE



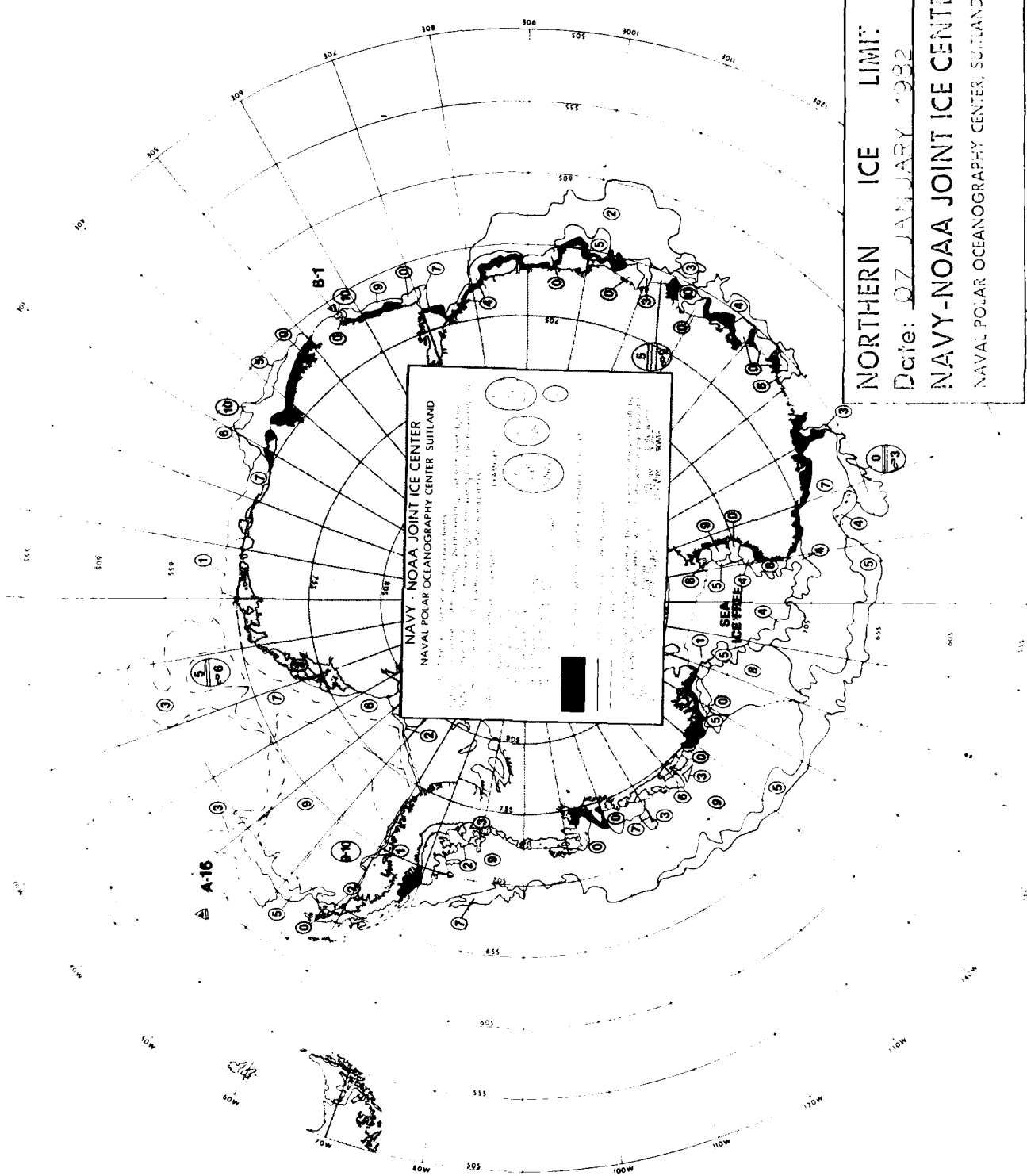
NORTHERN ICE LIMIT

Date: 17 DEC 1981

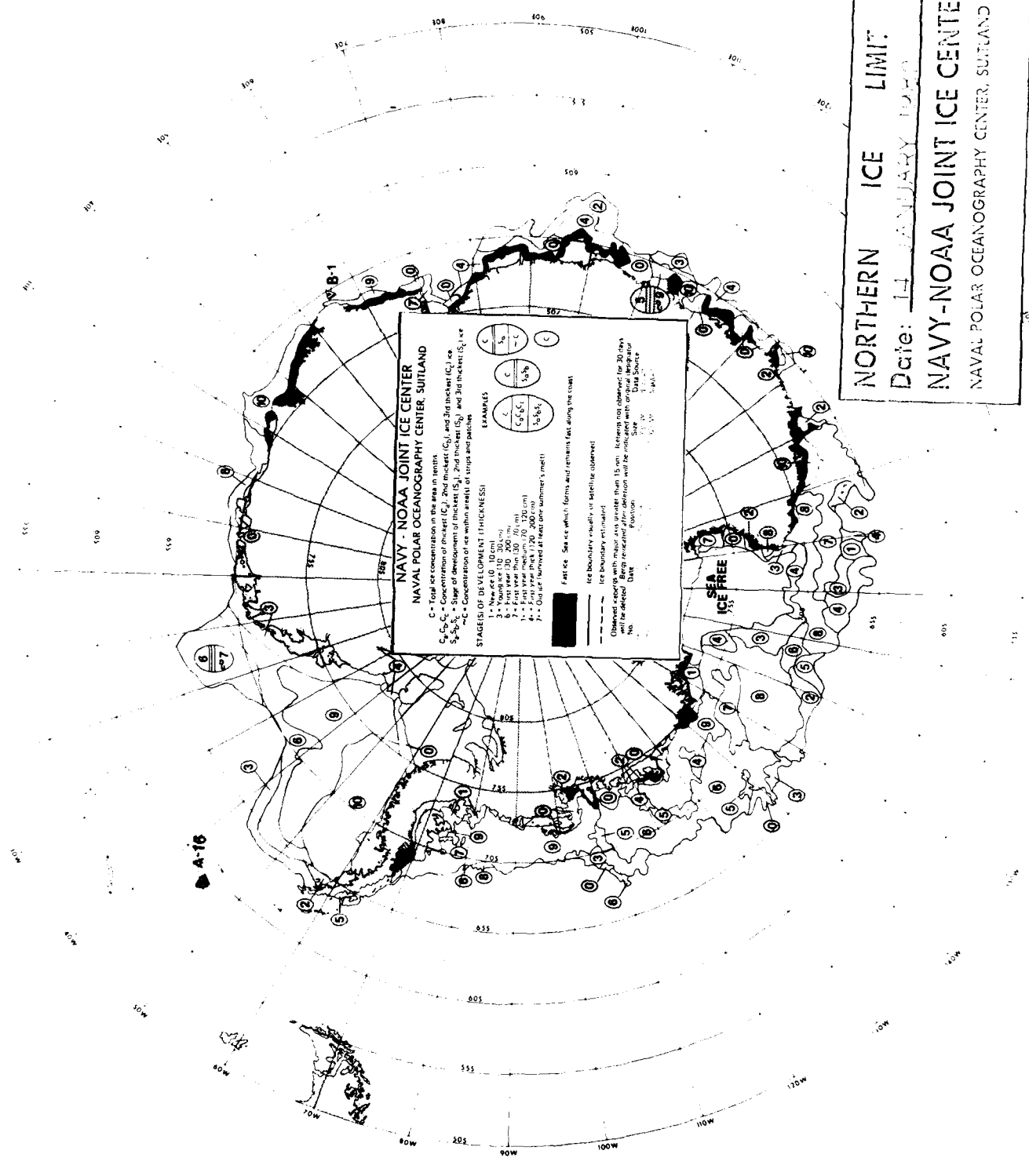
NAVY-NOAA JOINT ICE CENTER
NAVAL POLAR OCEANOGRAPHY CENTER, SUITLAND



NORTHERN ICE LIMIT
 Date: **24 DECEMBER 1981**
NAVY-NOAA JOINT ICE CENTER
 NAVAL POLAR OCEANOGRAPHY CENTER, SUITLAND

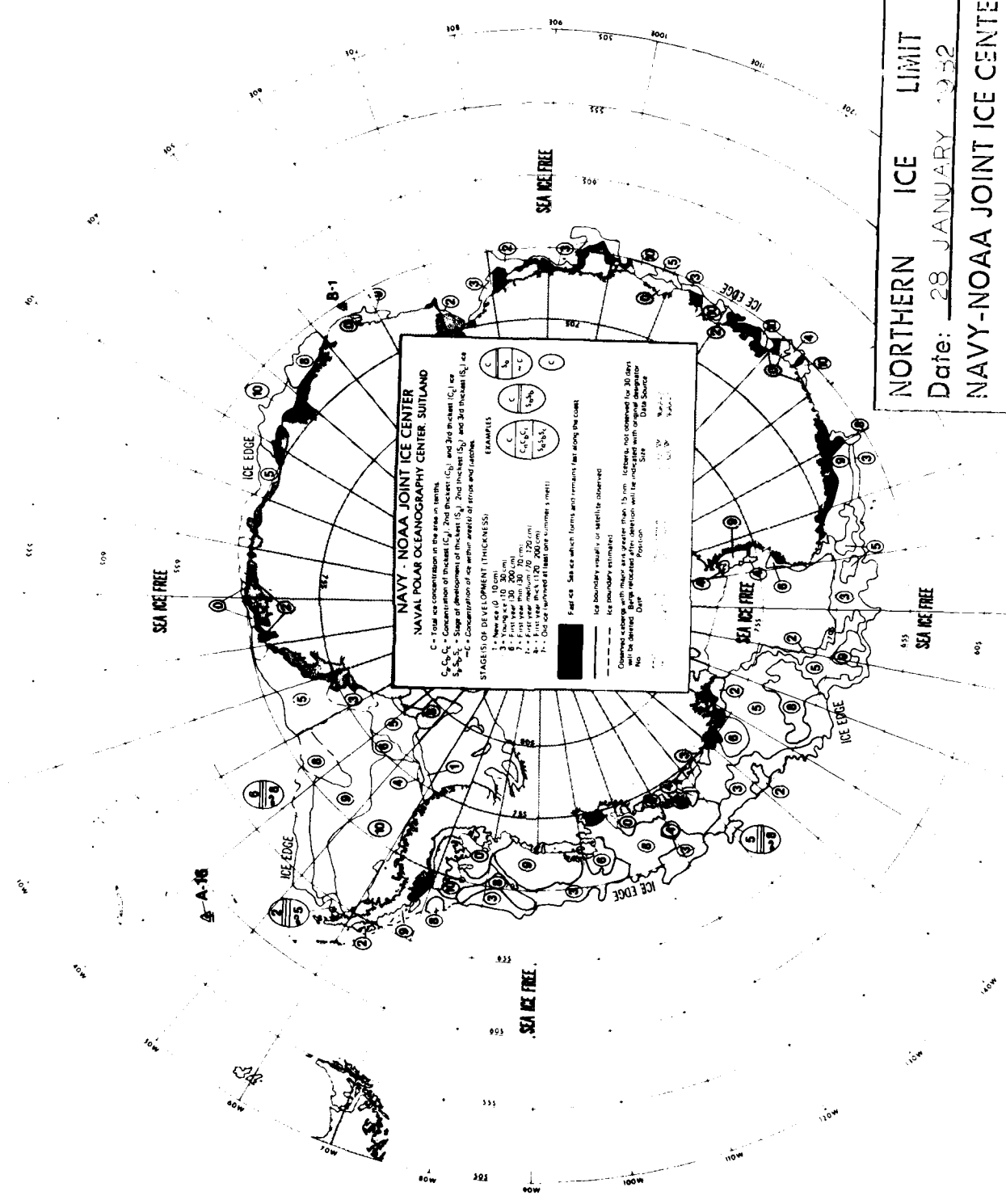


NORTHERN ICE LIMIT
Date: 07 JANUARY 1982
NAVY-NOAA JOINT ICE CENTER
NAVAL POLAR OCEANOGRAPHY CENTER, SUITLAND



NORTHERN ICE LIMIT
 Date: 14 JANUARY 1980
NAVY-NOAA JOINT ICE CENTER
 NAVAL POLAR OCEANOGRAPHY CENTER, SUTLAND

NORTHERN ICE LIMIT
Date: 28 JANUARY 1952
NAVY-NOAA JOINT ICE CENTER
 NAVAL POLAR OCEANOGRAPHY CENTER, SUTLAND



NAVY - NOAA JOINT ICE CENTER
NAVAL POLAR OCEANOGRAPHY CENTER, SUTLAND

Legend:

- C = Total ice concentration at the given latitude.
- C_1, C_2, C_3 = Concentration of ice in the first, second, and third ice classes (C_1 for first, C_2 for second, C_3 for third).
- S_1, S_2, S_3 = Shape of development of thickness (S_1 for first, S_2 for second, S_3 for third).
- T_1, T_2, T_3 = Thickness of ice in the first, second, and third ice classes (T_1 for first, T_2 for second, T_3 for third).
- N = Out of thickness at first and second ice classes.

STAGE (S) OF DEVELOPMENT (THICKNESS):

- 1 = New ice (0 - 10 cm)
- 2 = Young ice (10 - 30 cm)
- 3 = First year ice (30 - 70 cm)
- 4 = First year ice (70 - 120 cm)
- 5 = First year ice (120 - 150 cm)
- 6 = First year ice (150 - 200 cm)
- 7 = Out of thickness at first and second ice classes.

EXAMPLES:

- $\frac{C}{S_1 T_1}$
- $\frac{C_1}{S_1 T_1}$
- $\frac{C_2}{S_2 T_2}$
- $\frac{C_3}{S_3 T_3}$
- $\frac{C}{S_1 T_1} - \frac{C_1}{S_1 T_1}$
- $\frac{C}{S_1 T_1} - \frac{C_2}{S_2 T_2}$
- $\frac{C}{S_1 T_1} - \frac{C_3}{S_3 T_3}$

Notes:

- For ice, see which forms and remains for along the coast.
- Ice boundary is visible or satellite observed.
- Ice boundary estimated.
- Observed ice with major area greater than 15 km. Icebergs, not observed, less than 15 km. Icebergs, not observed, less than 15 km. Icebergs, not observed, less than 15 km.
- Large icebergs after detection will be indicated with original designation.
- Other: Date, Position, Size, Data Source.

3303 JUL 83



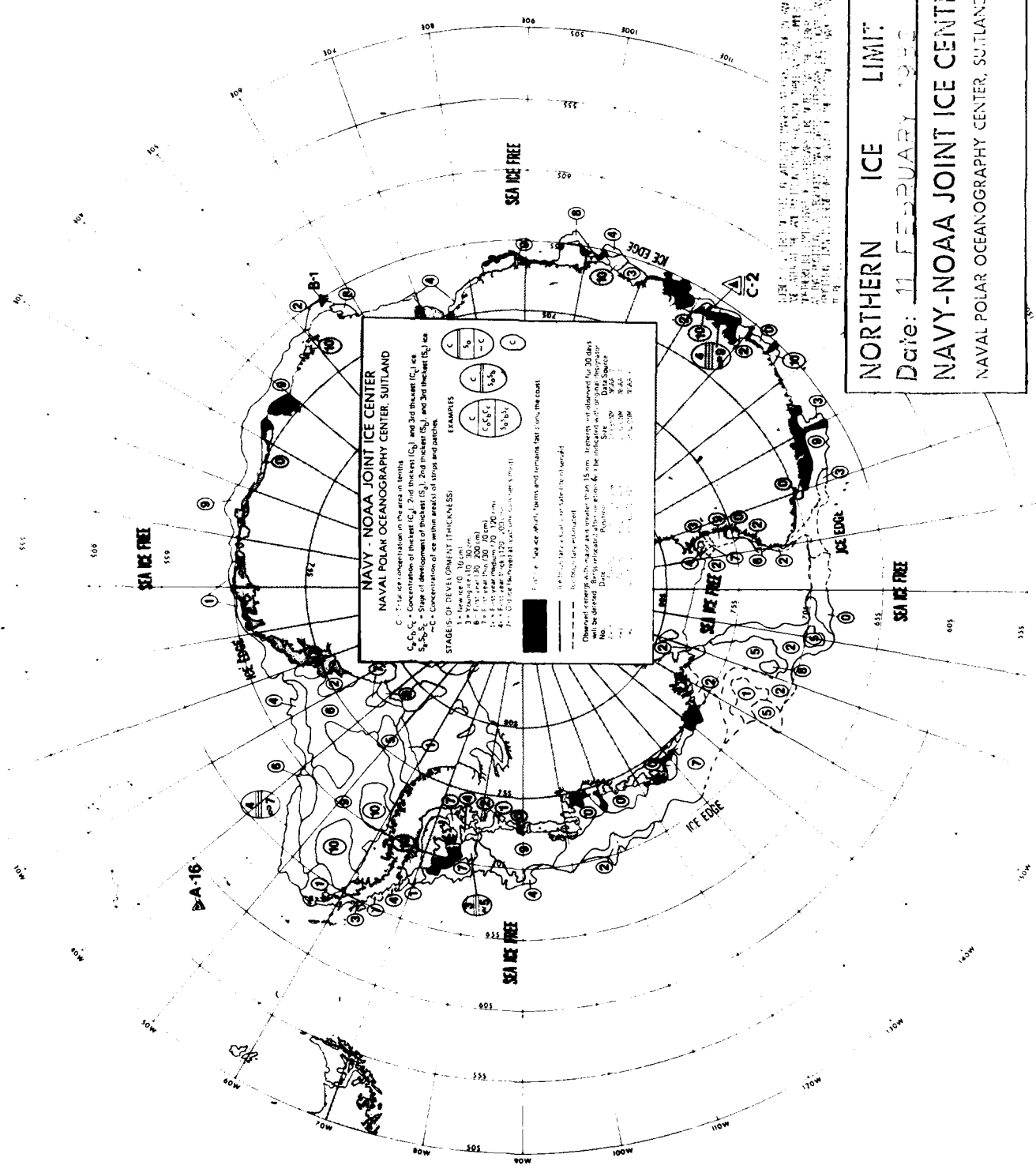
ICEBERG C-2.
APPARENTLY GROUNDED IN THE VICINITY OF 650SS 13030W SINCE AT
EAST 1979. NO LONGER APPEARS ON IMAGERY THAT ICEBERG DISAPPEARED
10 MAR 1981 AND 21 JAN 1982)

NORTHERN	ICE	LIMIT
1	2	3
4	5	6
7	8	9
10	11	12
13	14	15
16	17	18
19	20	21
22	23	24
25	26	27
28	29	30
31	32	33
34	35	36
37	38	39
40	41	42
43	44	45
46	47	48
49	50	51
52	53	54
55	56	57
58	59	60
61	62	63
64	65	66
67	68	69
70	71	72
73	74	75
76	77	78
79	80	81
82	83	84
85	86	87
88	89	90
91	92	93
94	95	96
97	98	99
100	101	102
103	104	105
106	107	108
109	110	111
112	113	114
115	116	117
118	119	120
121	122	123
124	125	126
127	128	129
130	131	132
133	134	135
136	137	138
139	140	141
142	143	144
145	146	147
148	149	150
151	152	153
154	155	156
157	158	159
160	161	162
163	164	165
166	167	168
169	170	171
172	173	174
175	176	177
178	179	180
181	182	183
184	185	186
187	188	189
190	191	192
193	194	195
196	197	198
199	200	201
202	203	204
205	206	207
208	209	210
211	212	213
214	215	216
217	218	219
220	221	222
223	224	225
226	227	228
229	230	231
232	233	234
235	236	237
238	239	240
241	242	243
244	245	246
247	248	249
250	251	252
253	254	255
256	257	258
259	260	261
262	263	264
265	266	267
268	269	270
271	272	273
274	275	276
277	278	279
280	281	282
283	284	285
286	287	288
289	290	291
292	293	294
295	296	297
298	299	300
301	302	303
304	305	306
307	308	309
310	311	312
313	314	315
316	317	318
319	320	321
322	323	324
325	326	327
328	329	330
331	332	333
334	335	336
337	338	339
340	341	342
343	344	345
346	347	348
349	350	351
352	353	354
355	356	357
358	359	360
361	362	363
364	365	366
367		

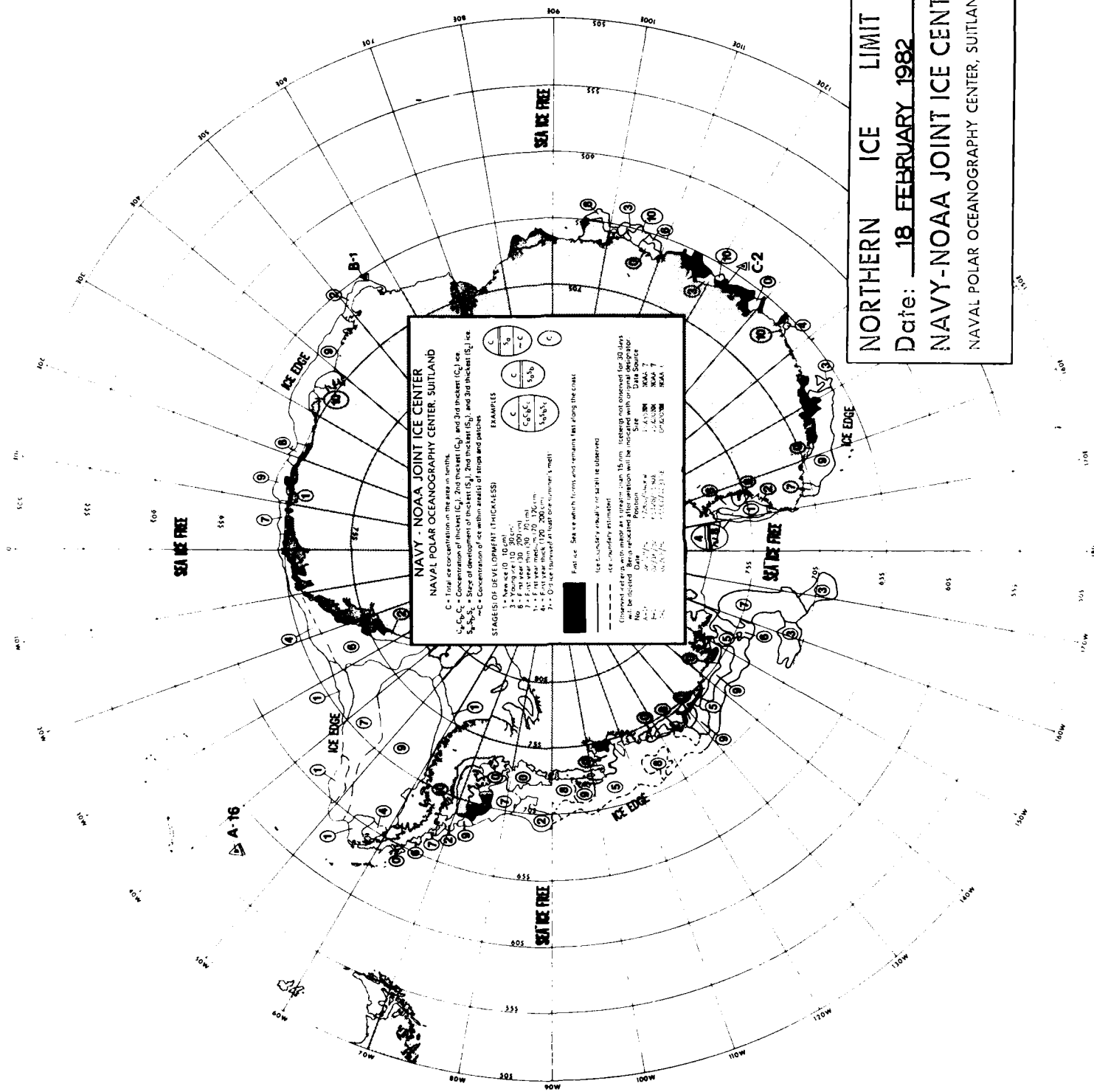
Date: 04 FEBRUARY 1982

NAVY-NOAA JOINT ICE CENTER

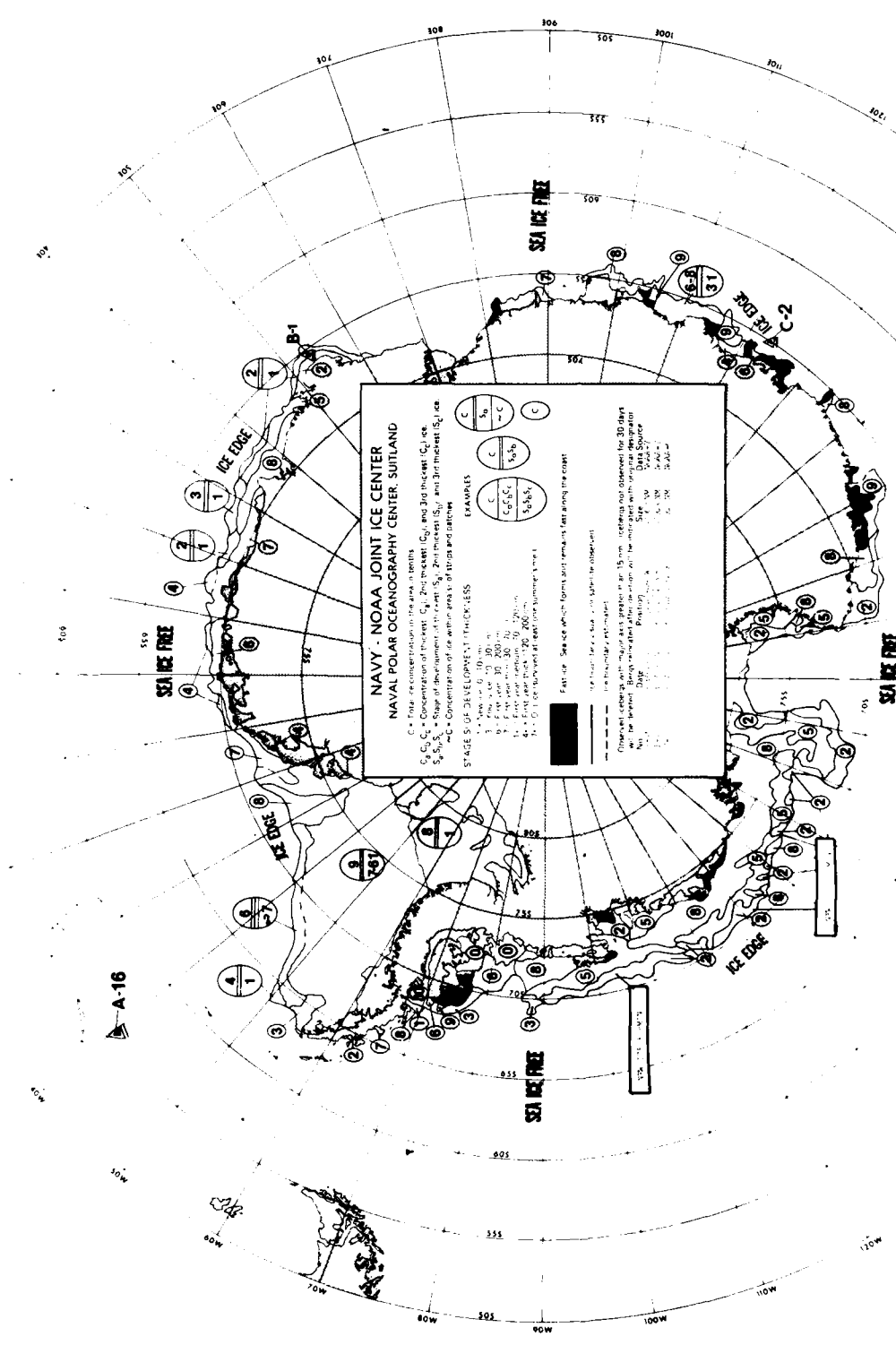
N'AVA' POLAR OCEANOGRAPHY CENTER, SUITLAND



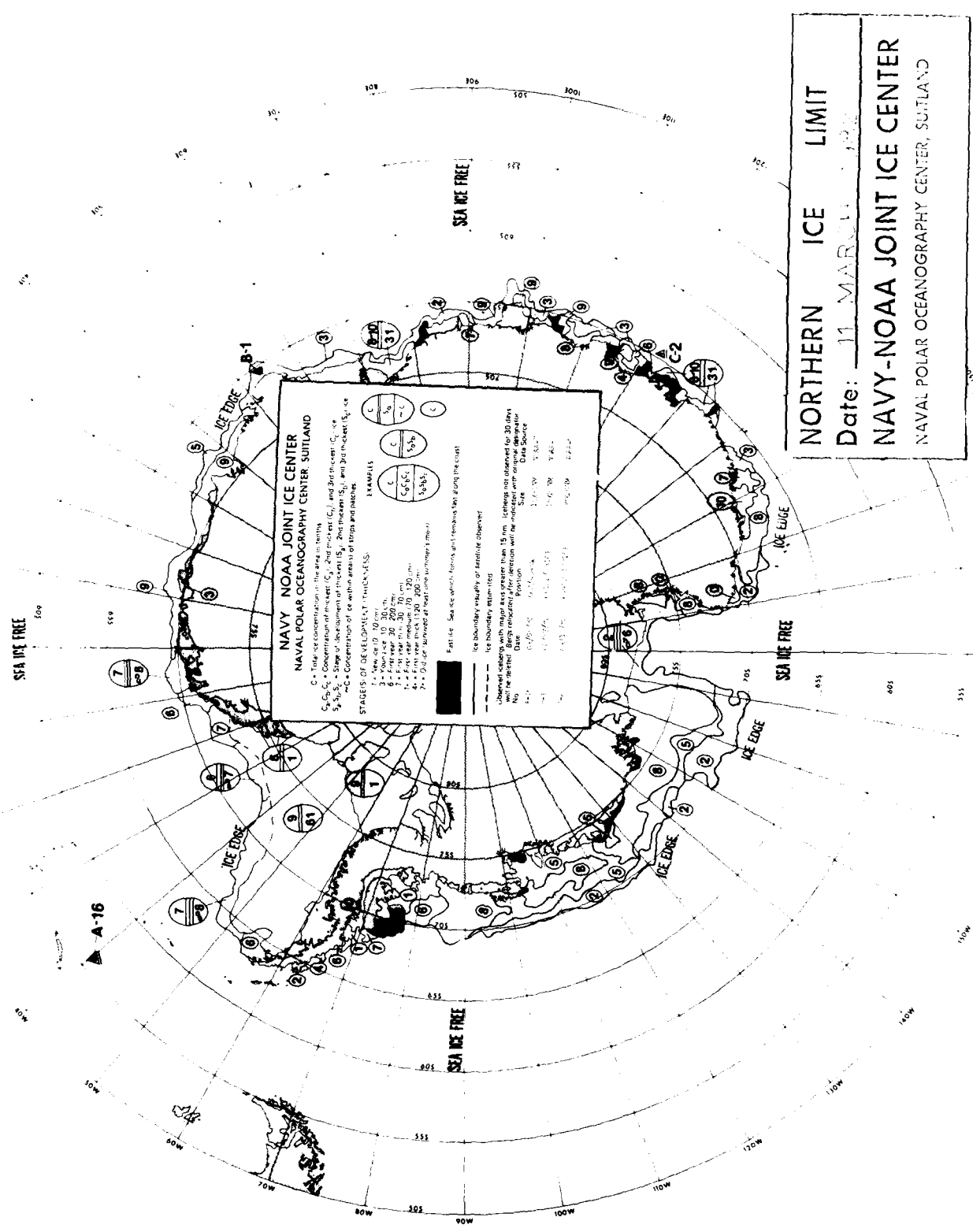
NORTHERN ICE LIMIT
 Date: 11 FEBRUARY 1962
NAVY-NOAA JOINT ICE CENTER
 NAVAL POLAR OCEANOGRAPHY CENTER, SUTLAND



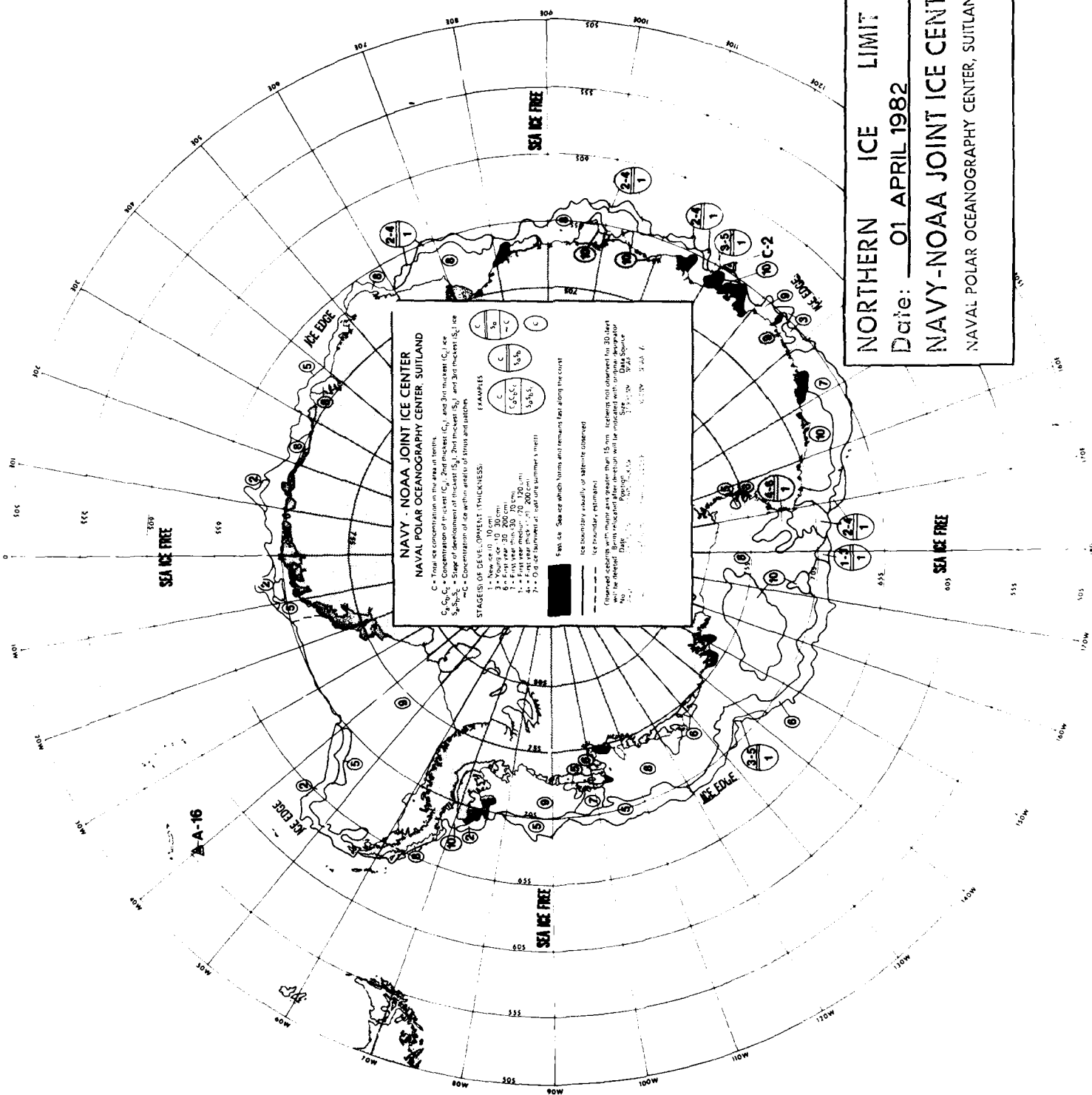
NORTHERN ICE LIMIT
 Date: **18 FEBRUARY 1982**
NAVY-NOAA JOINT ICE CENTER
 NAVAL POLAR OCEANOGRAPHY CENTER, SUITLAND



NORTHERN ICE LIMIT
Date: 04 MARCH 1932
NAVY-NOAA JOINT ICE CENTER
NAVAL POLAR OCEANOGRAPHY CENTER, SUITLAND



NORTHERN ICE LIMIT
 Date: 11 MAR 1966
NAVY-NOAA JOINT ICE CENTER
 NAVAL POLAR OCEANOGRAPHY CENTER, SUITLAND



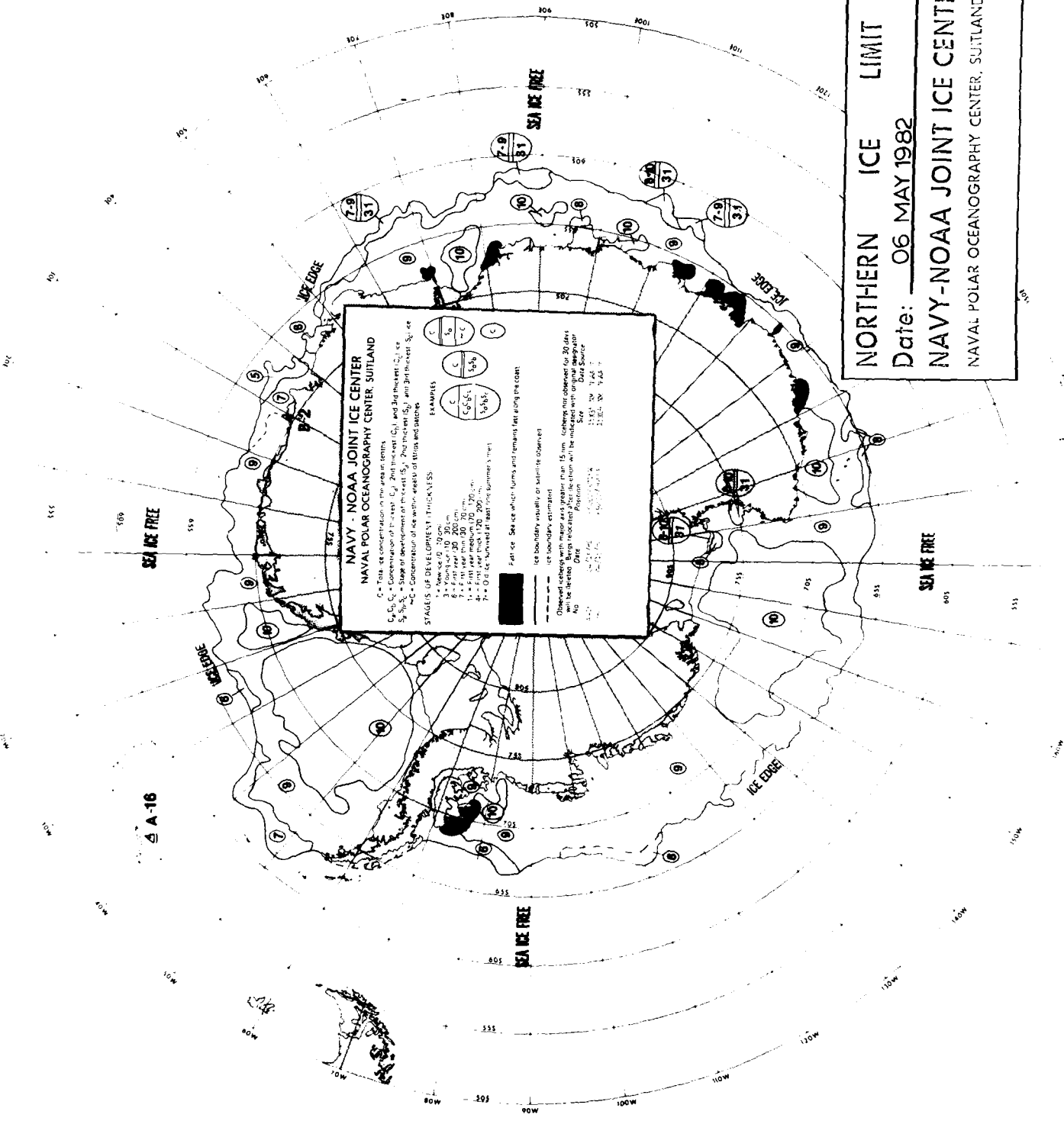
NORTHERN ICE LIMIT
 Date: **01 APRIL 1982**
NAVY-NOAA JOINT ICE CENTER
 NAVAL POLAR OCEANOGRAPHY CENTER, SUITLAND

NAVY - NOAA JOINT ICE CENTER
NAVAL POLAR OCEANOGRAPHY CENTER, SUITLAND

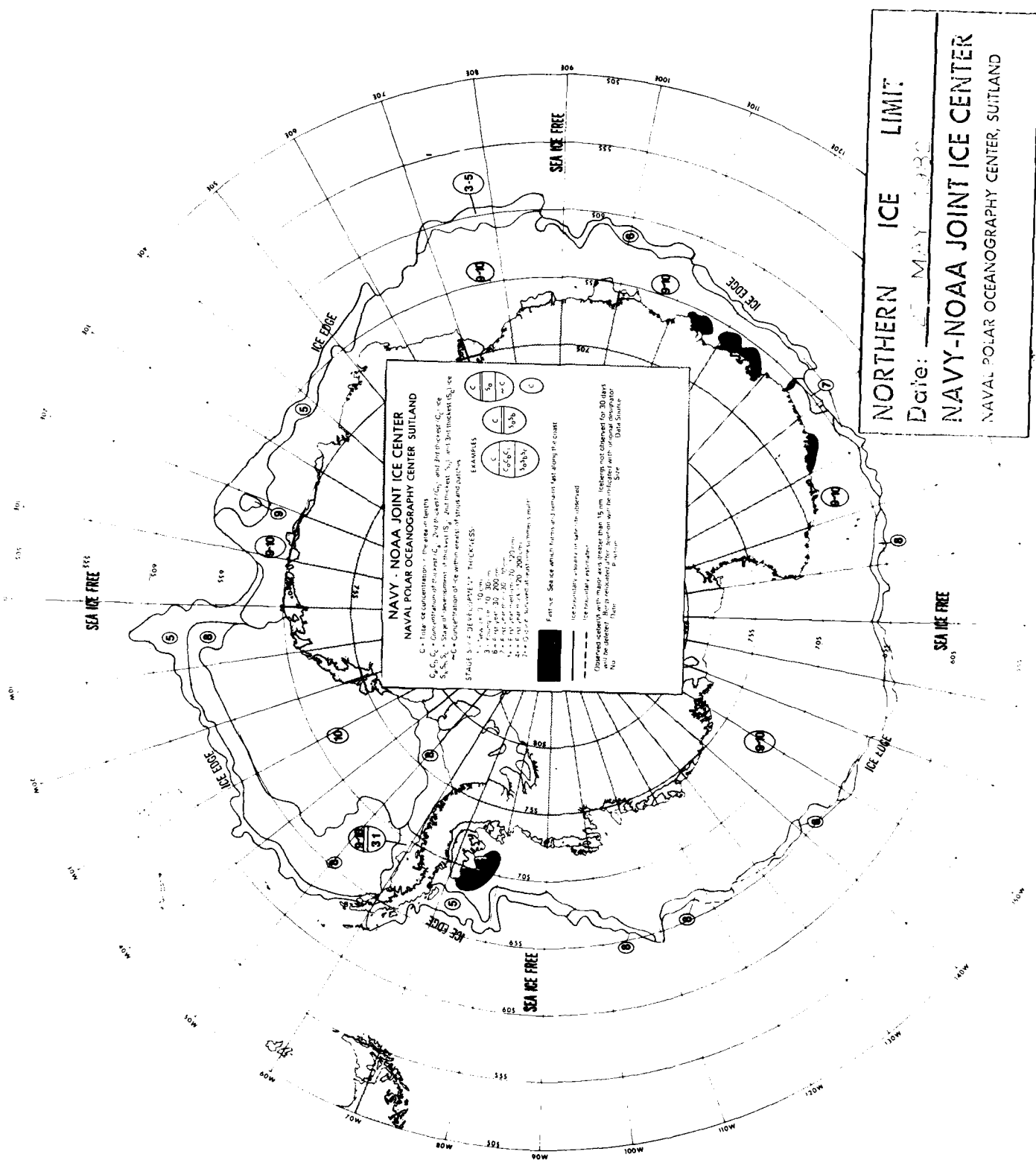
C = Total ice concentration in the area of report.
 C₁, C₂, C₃ = Concentration of 1st, 2nd, and 3rd thickest ice.
 S₁, S₂, S₃ = Stage of development of 1st, 2nd, and 3rd thickest ice.
 T = Concentration of ice within areas of 1000 and 5000.

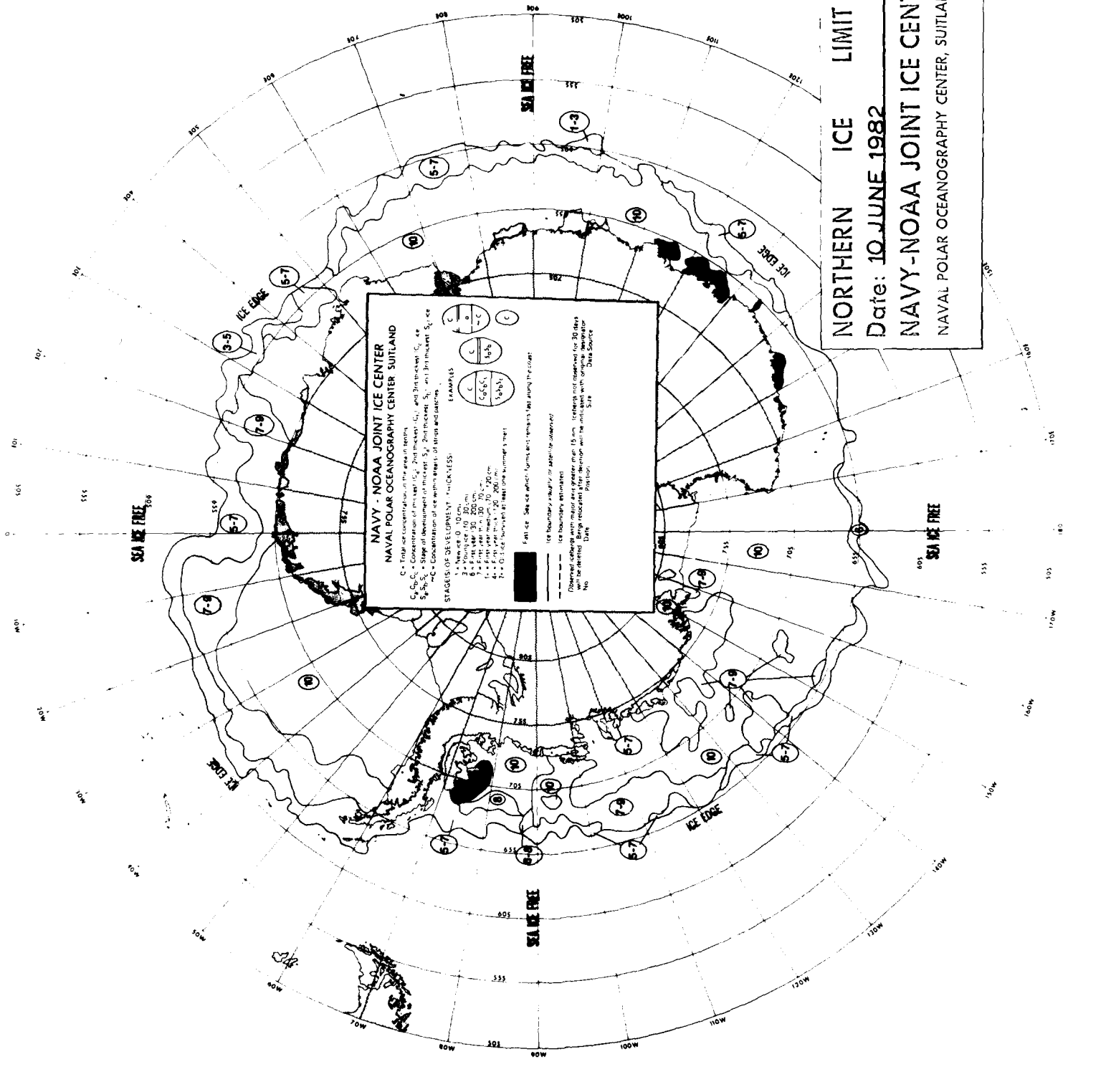
STAGES OF DEVELOPMENT (THICKNESS)

1 = New ice (0-10 cm)
 2 = Young ice (10-30 cm)
 3 = First year ice (30-70 cm)
 4 = First year ice medium (70-120 cm)
 5 = First year ice (120-150 cm)
 6 = Old ice (150-200 cm)
 7 = Old ice (200-250 cm)
 8 = Old ice (250-300 cm)
 9 = Old ice (300-350 cm)
 10 = Old ice (350-400 cm)
 11 = Old ice (400-450 cm)
 12 = Old ice (450-500 cm)
 13 = Old ice (500-550 cm)
 14 = Old ice (550-600 cm)
 15 = Old ice (600-650 cm)
 16 = Old ice (650-700 cm)
 17 = Old ice (700-750 cm)
 18 = Old ice (750-800 cm)
 19 = Old ice (800-850 cm)
 20 = Old ice (850-900 cm)
 21 = Old ice (900-950 cm)
 22 = Old ice (950-1000 cm)
 23 = Old ice (1000-1050 cm)
 24 = Old ice (1050-1100 cm)
 25 = Old ice (1100-1150 cm)
 26 = Old ice (1150-1200 cm)
 27 = Old ice (1200-1250 cm)
 28 = Old ice (1250-1300 cm)
 29 = Old ice (1300-1350 cm)
 30 = Old ice (1350-1400 cm)
 31 = Old ice (1400-1450 cm)
 32 = Old ice (1450-1500 cm)
 33 = Old ice (1500-1550 cm)
 34 = Old ice (1550-1600 cm)
 35 = Old ice (1600-1650 cm)
 36 = Old ice (1650-1700 cm)
 37 = Old ice (1700-1750 cm)
 38 = Old ice (1750-1800 cm)
 39 = Old ice (1800-1850 cm)
 40 = Old ice (1850-1900 cm)
 41 = Old ice (1900-1950 cm)
 42 = Old ice (1950-2000 cm)
 43 = Old ice (2000-2050 cm)
 44 = Old ice (2050-2100 cm)
 45 = Old ice (2100-2150 cm)
 46 = Old ice (2150-2200 cm)
 47 = Old ice (2200-2250 cm)
 48 = Old ice (2250-2300 cm)
 49 = Old ice (2300-2350 cm)
 50 = Old ice (2350-2400 cm)
 51 = Old ice (2400-2450 cm)
 52 = Old ice (2450-2500 cm)
 53 = Old ice (2500-2550 cm)
 54 = Old ice (2550-2600 cm)
 55 = Old ice (2600-2650 cm)
 56 = Old ice (2650-2700 cm)
 57 = Old ice (2700-2750 cm)
 58 = Old ice (2750-2800 cm)
 59 = Old ice (2800-2850 cm)
 60 = Old ice (2850-2900 cm)
 61 = Old ice (2900-2950 cm)
 62 = Old ice (2950-3000 cm)
 63 = Old ice (3000-3050 cm)
 64 = Old ice (3050-3100 cm)
 65 = Old ice (3100-3150 cm)
 66 = Old ice (3150-3200 cm)
 67 = Old ice (3200-3250 cm)
 68 = Old ice (3250-3300 cm)
 69 = Old ice (3300-3350 cm)
 70 = Old ice (3350-3400 cm)
 71 = Old ice (3400-3450 cm)
 72 = Old ice (3450-3500 cm)
 73 = Old ice (3500-3550 cm)
 74 = Old ice (3550-3600 cm)
 75 = Old ice (3600-3650 cm)
 76 = Old ice (3650-3700 cm)
 77 = Old ice (3700-3750 cm)
 78 = Old ice (3750-3800 cm)
 79 = Old ice (3800-3850 cm)
 80 = Old ice (3850-3900 cm)
 81 = Old ice (3900-3950 cm)
 82 = Old ice (3950-4000 cm)
 83 = Old ice (4000-4050 cm)
 84 = Old ice (4050-4100 cm)
 85 = Old ice (4100-4150 cm)
 86 = Old ice (4150-4200 cm)
 87 = Old ice (4200-4250 cm)
 88 = Old ice (4250-4300 cm)
 89 = Old ice (4300-4350 cm)
 90 = Old ice (4350-4400 cm)
 91 = Old ice (4400-4450 cm)
 92 = Old ice (4450-4500 cm)
 93 = Old ice (4500-4550 cm)
 94 = Old ice (4550-4600 cm)
 95 = Old ice (4600-4650 cm)
 96 = Old ice (4650-4700 cm)
 97 = Old ice (4700-4750 cm)
 98 = Old ice (4750-4800 cm)
 99 = Old ice (4800-4850 cm)
 100 = Old ice (4850-4900 cm)
 101 = Old ice (4900-4950 cm)
 102 = Old ice (4950-5000 cm)
 103 = Old ice (5000-5050 cm)
 104 = Old ice (5050-5100 cm)
 105 = Old ice (5100-5150 cm)
 106 = Old ice (5150-5200 cm)
 107 = Old ice (5200-5250 cm)
 108 = Old ice (5250-5300 cm)
 109 = Old ice (5300-5350 cm)
 110 = Old ice (5350-5400 cm)
 111 = Old ice (5400-5450 cm)
 112 = Old ice (5450-5500 cm)
 113 = Old ice (5500-5550 cm)
 114 = Old ice (5550-5600 cm)
 115 = Old ice (5600-5650 cm)
 116 = Old ice (5650-5700 cm)
 117 = Old ice (5700-5750 cm)
 118 = Old ice (5750-5800 cm)
 119 = Old ice (5800-5850 cm)
 120 = Old ice (5850-5900 cm)
 121 = Old ice (5900-5950 cm)
 122 = Old ice (5950-6000 cm)
 123 = Old ice (6000-6050 cm)
 124 = Old ice (6050-6100 cm)
 125 = Old ice (6100-6150 cm)
 126 = Old ice (6150-6200 cm)
 127 = Old ice (6200-6250 cm)
 128 = Old ice (6250-6300 cm)
 129 = Old ice (6300-6350 cm)
 130 = Old ice (6350-6400 cm)
 131 = Old ice (6400-6450 cm)
 132 = Old ice (6450-6500 cm)
 133 = Old ice (6500-6550 cm)
 134 = Old ice (6550-6600 cm)
 135 = Old ice (6600-6650 cm)
 136 = Old ice (6650-6700 cm)
 137 = Old ice (6700-6750 cm)
 138 = Old ice (6750-6800 cm)
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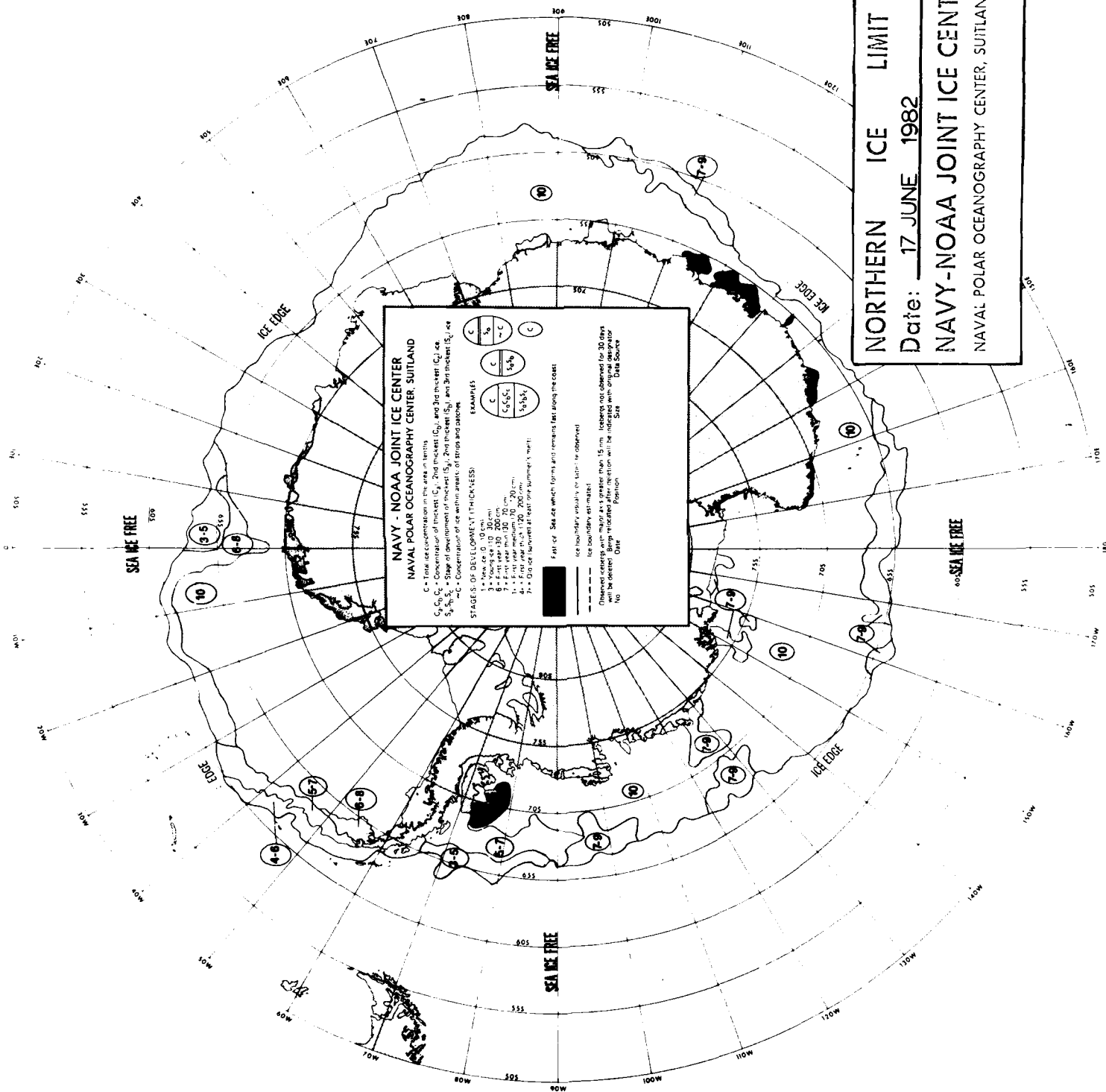


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NAVY-NOAA JOINT ICE CENTER
 NAVAL POLAR OCEANOGRAPHY CENTER, SUTLAND

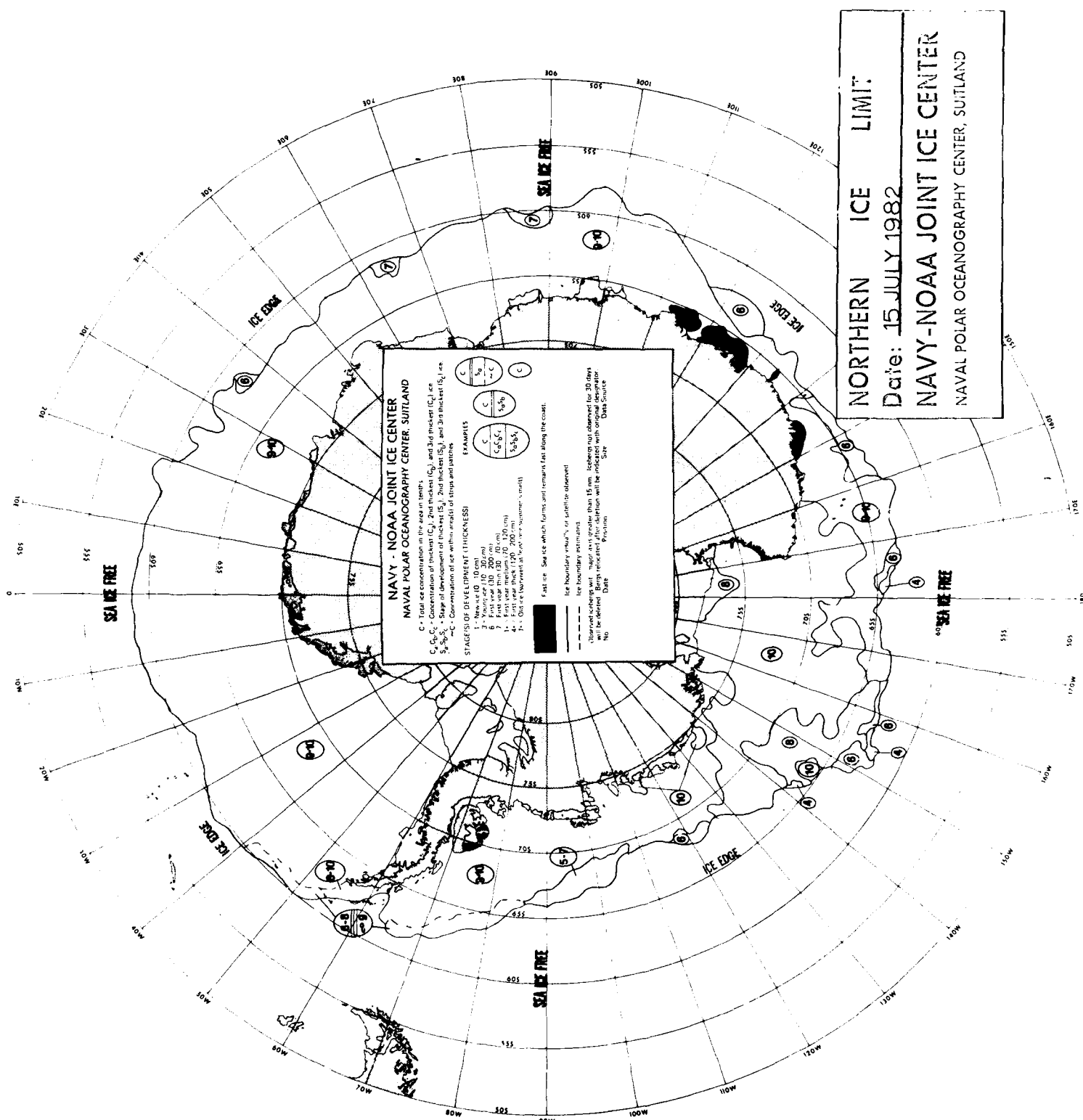




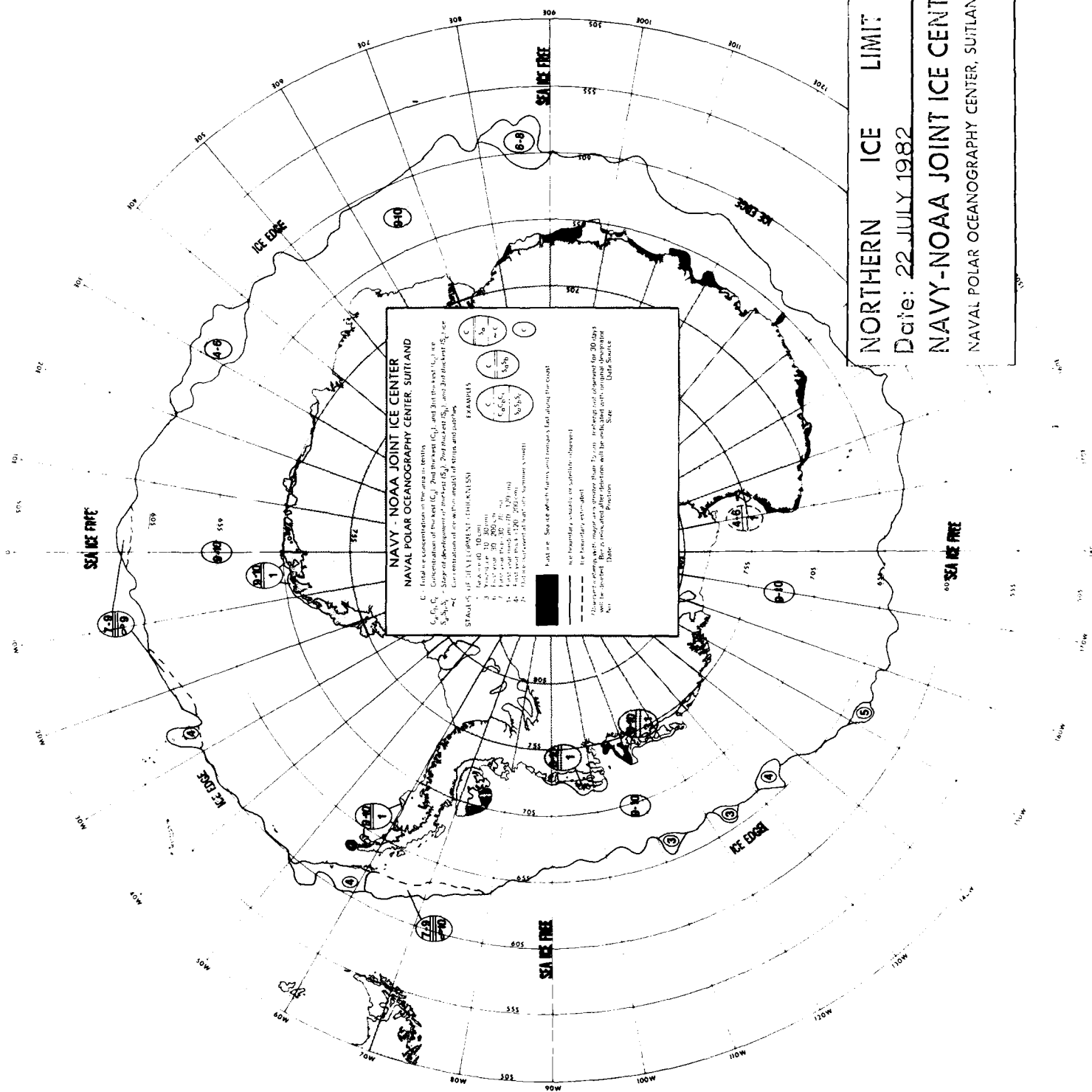
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NAVY-NOAA JOINT ICE CENTER
 NAVAL POLAR OCEANOGRAPHY CENTER, SUITLAND



NORTHERN ICE LIMIT
 Date: 17 JUNE 1982
NAVY-NOAA JOINT ICE CENTER
 NAVAL POLAR OCEANOGRAPHY CENTER, SUITLAND



NORTHERN ICE LIMIT
 Date: 15 JULY 1982
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 NAVAL POLAR OCEANOGRAPHY CENTER, SUTLAND

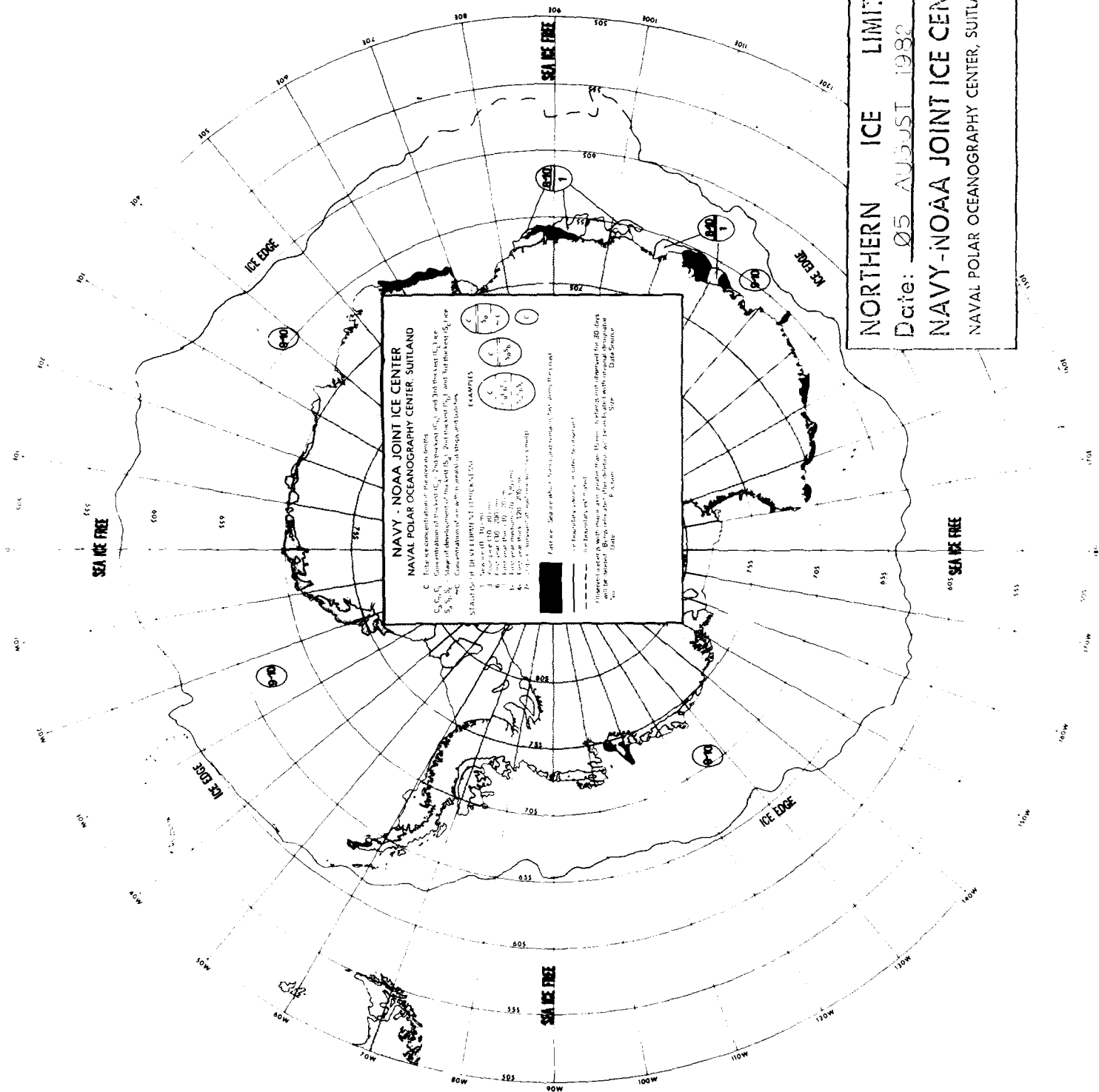


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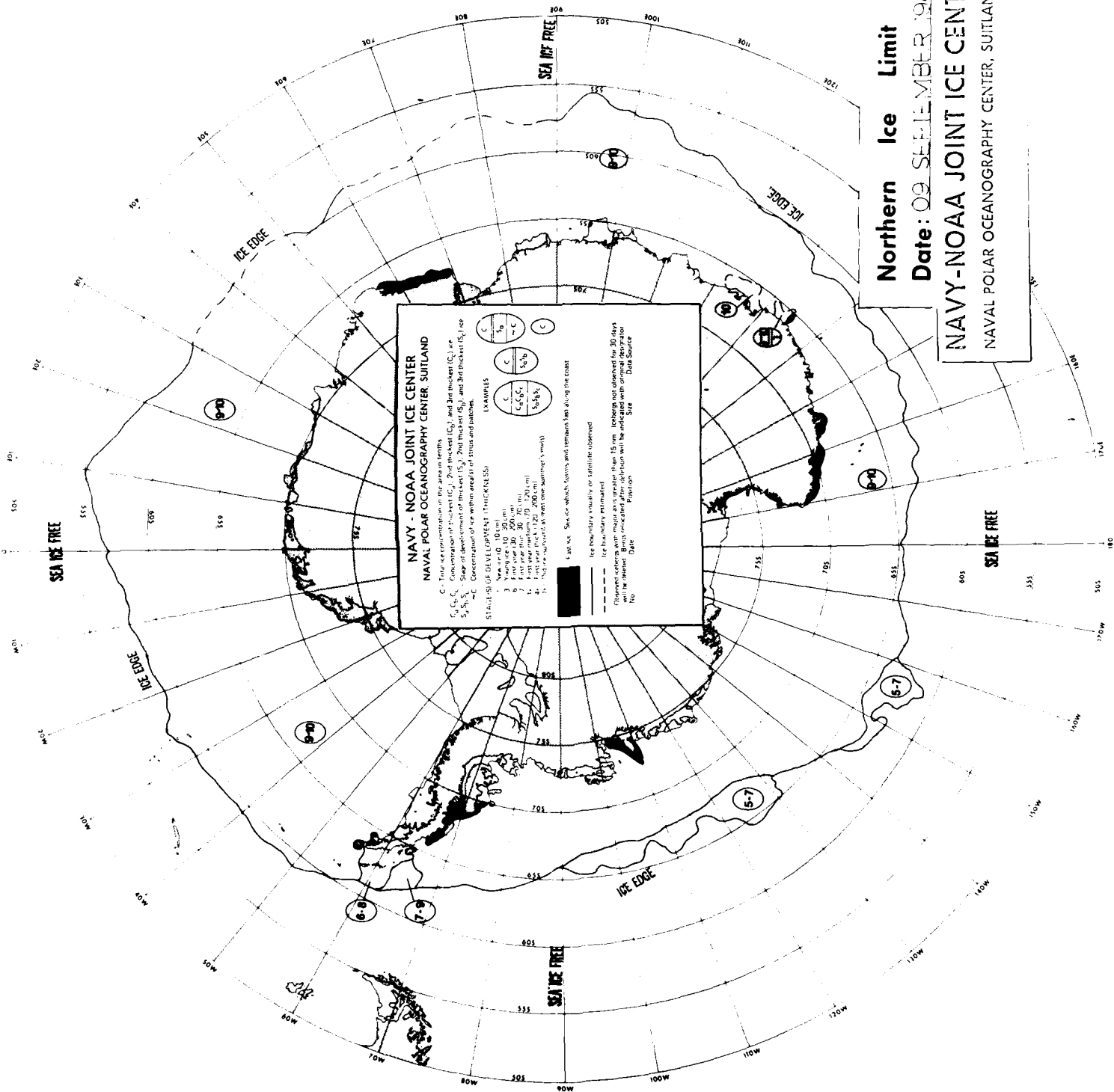
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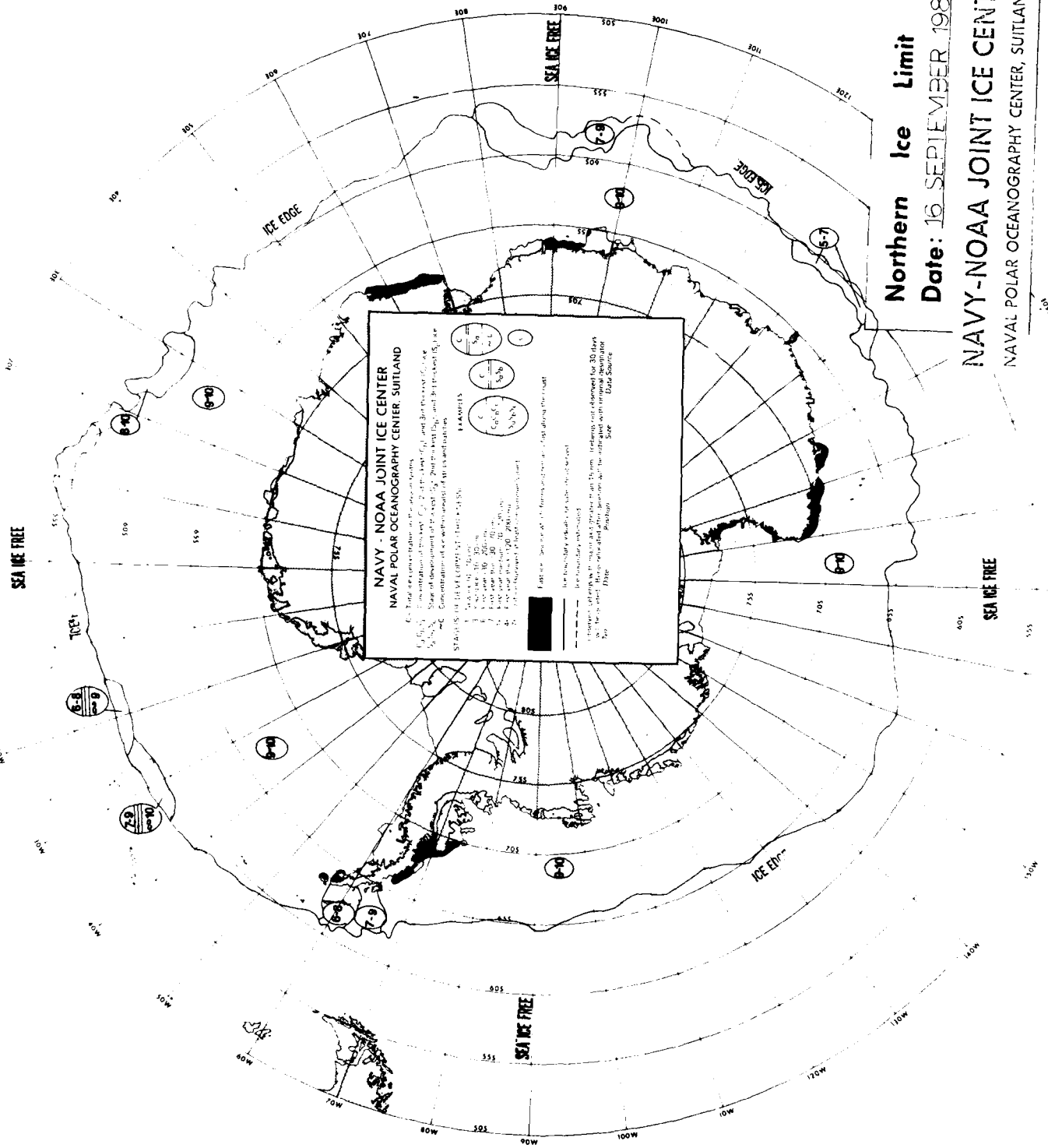


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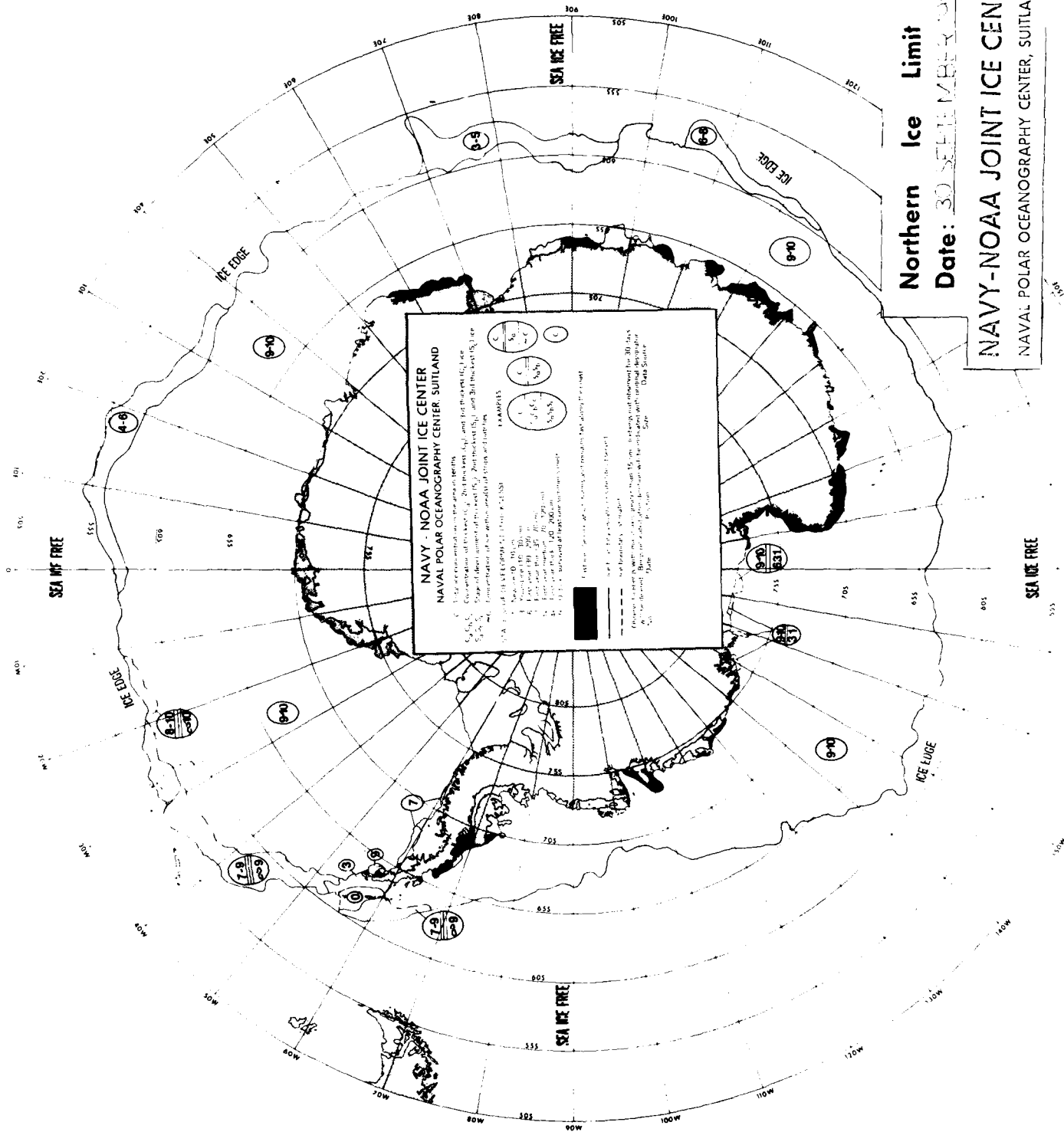


Northern Ice Limit

Date: 16 SEPTEMBER 1982

NAVY-NOAA JOINT ICE CENTER

NAVAL POLAR OCEANOGRAPHY CENTER, SUTLAND



Northern Ice Limit

Date: 30 SEPTEMBER 1990

NAVY-NOAA JOINT ICE CENTER

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ANTARCTIC ICE CHARTS 1981-1982(U) NAVAL POLAR
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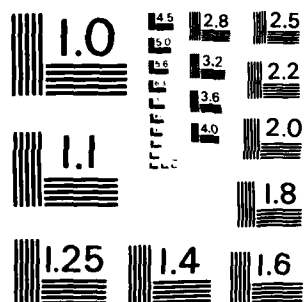
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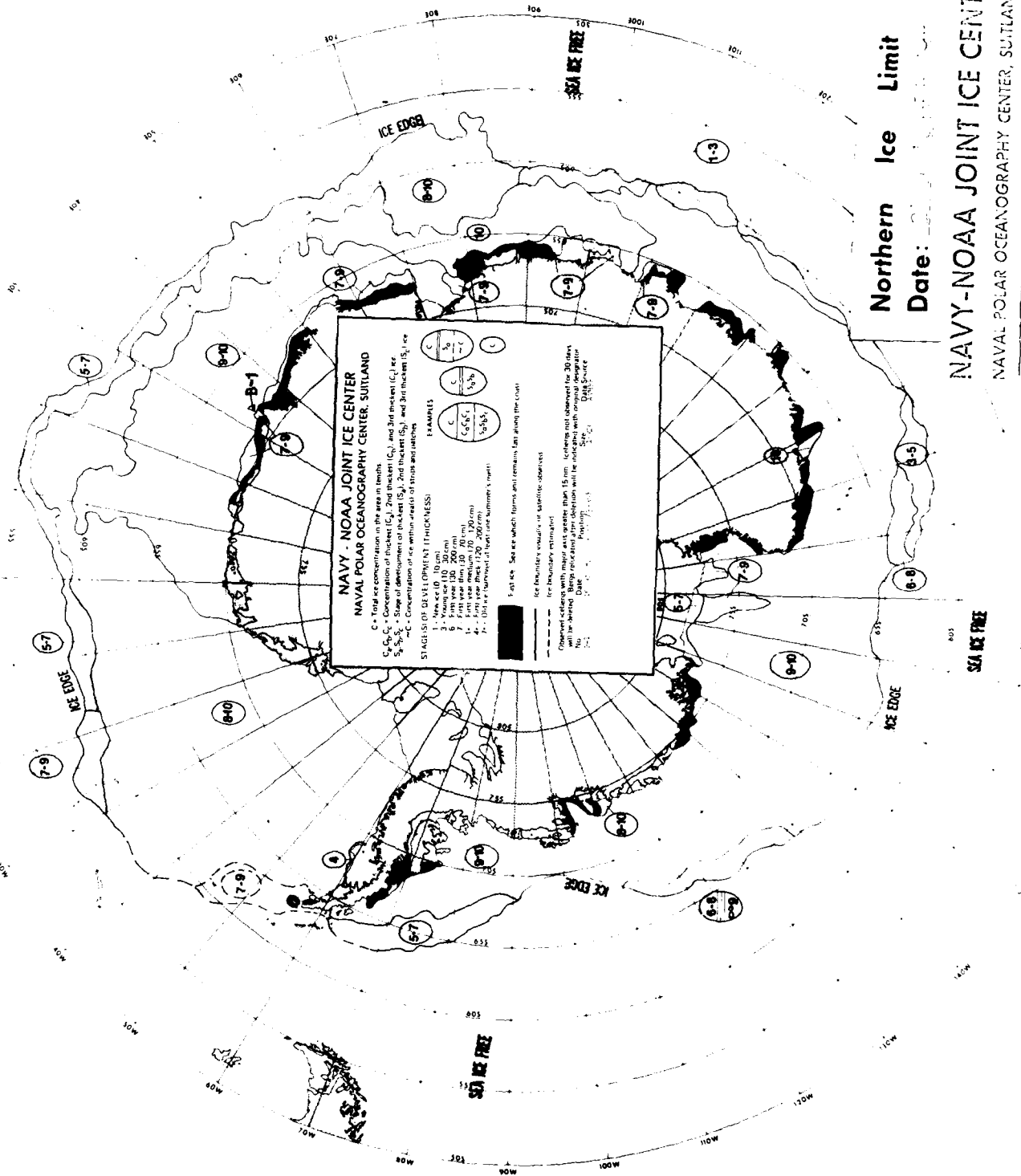
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SEA ICE FREE

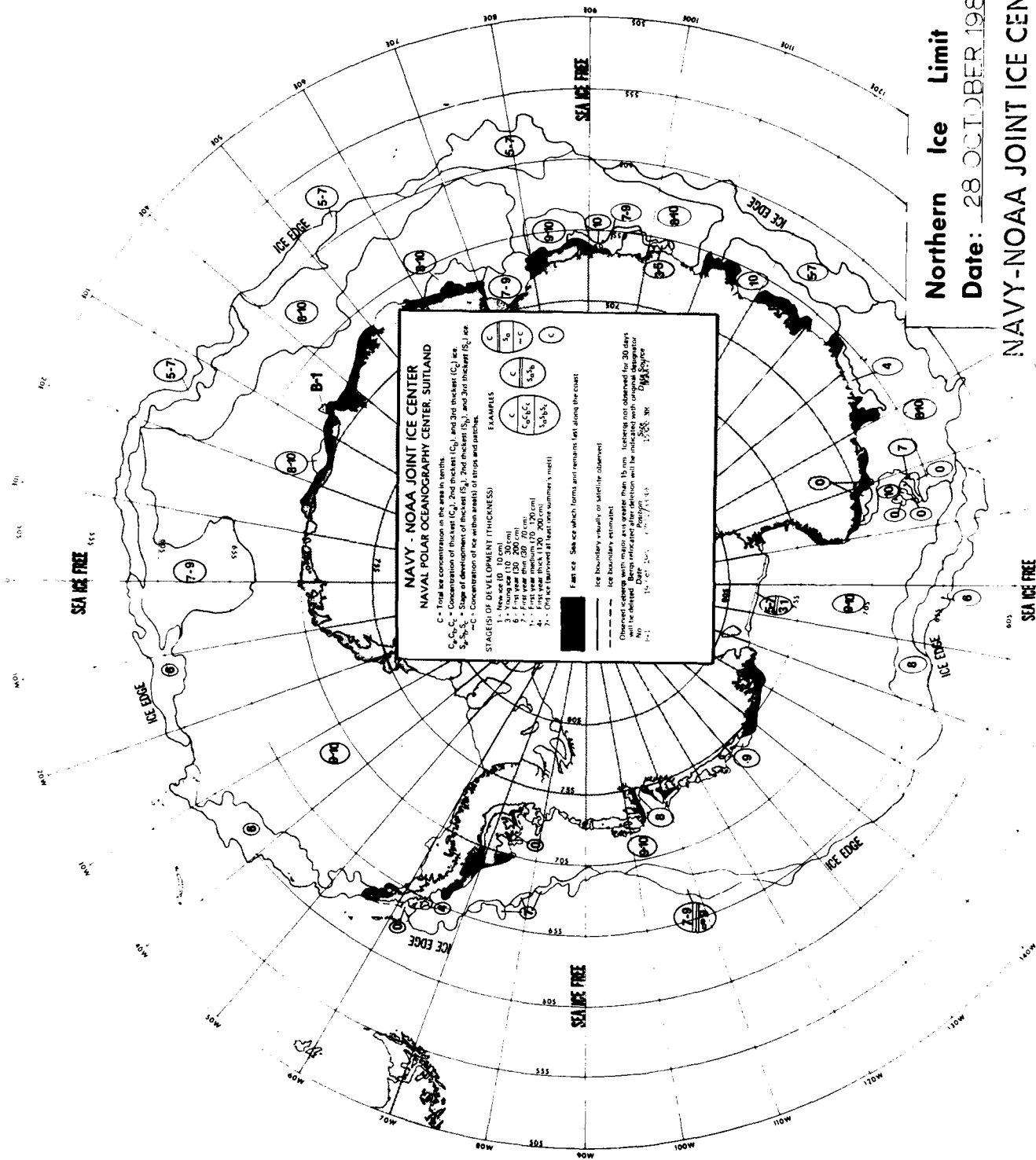


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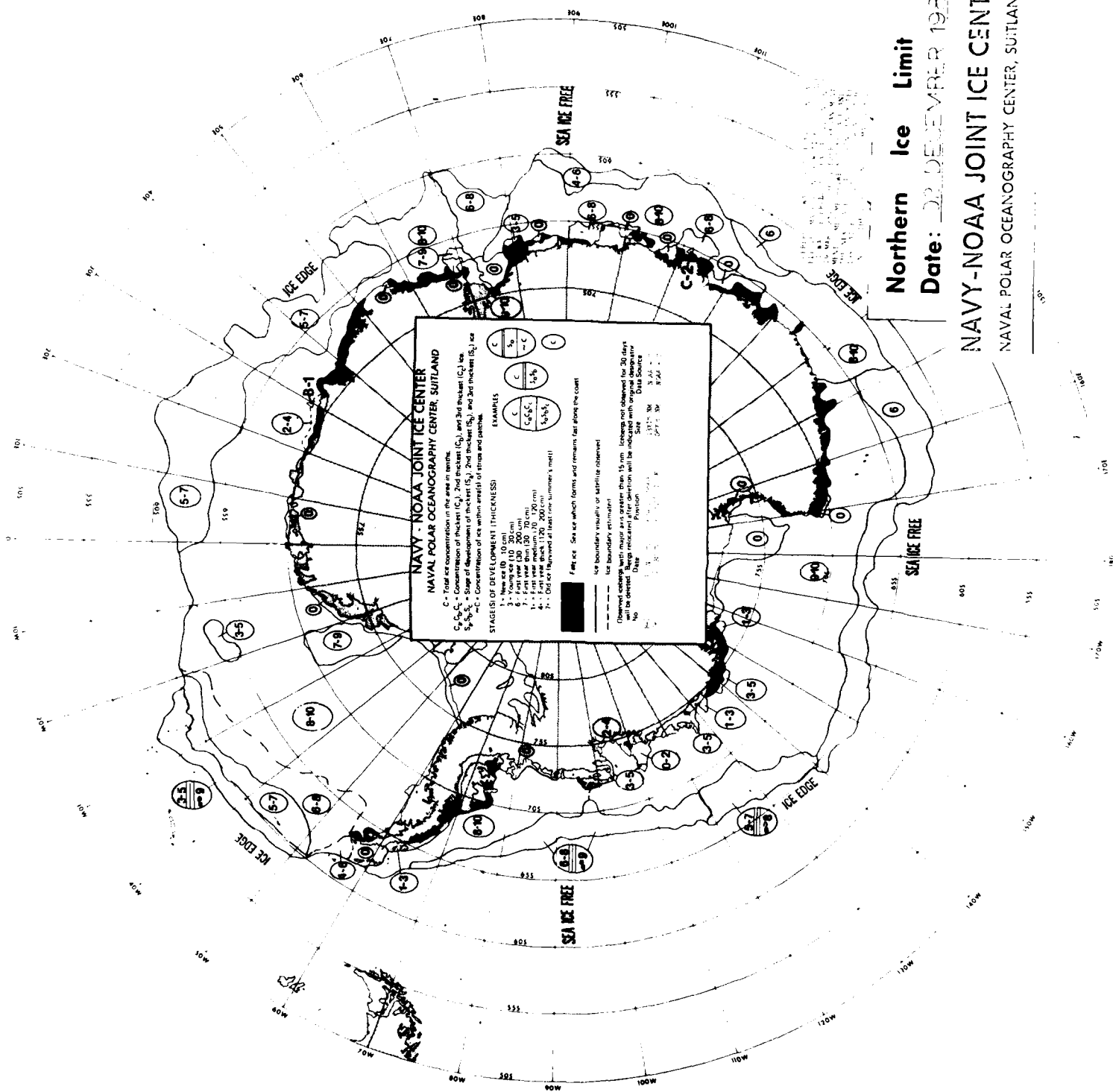


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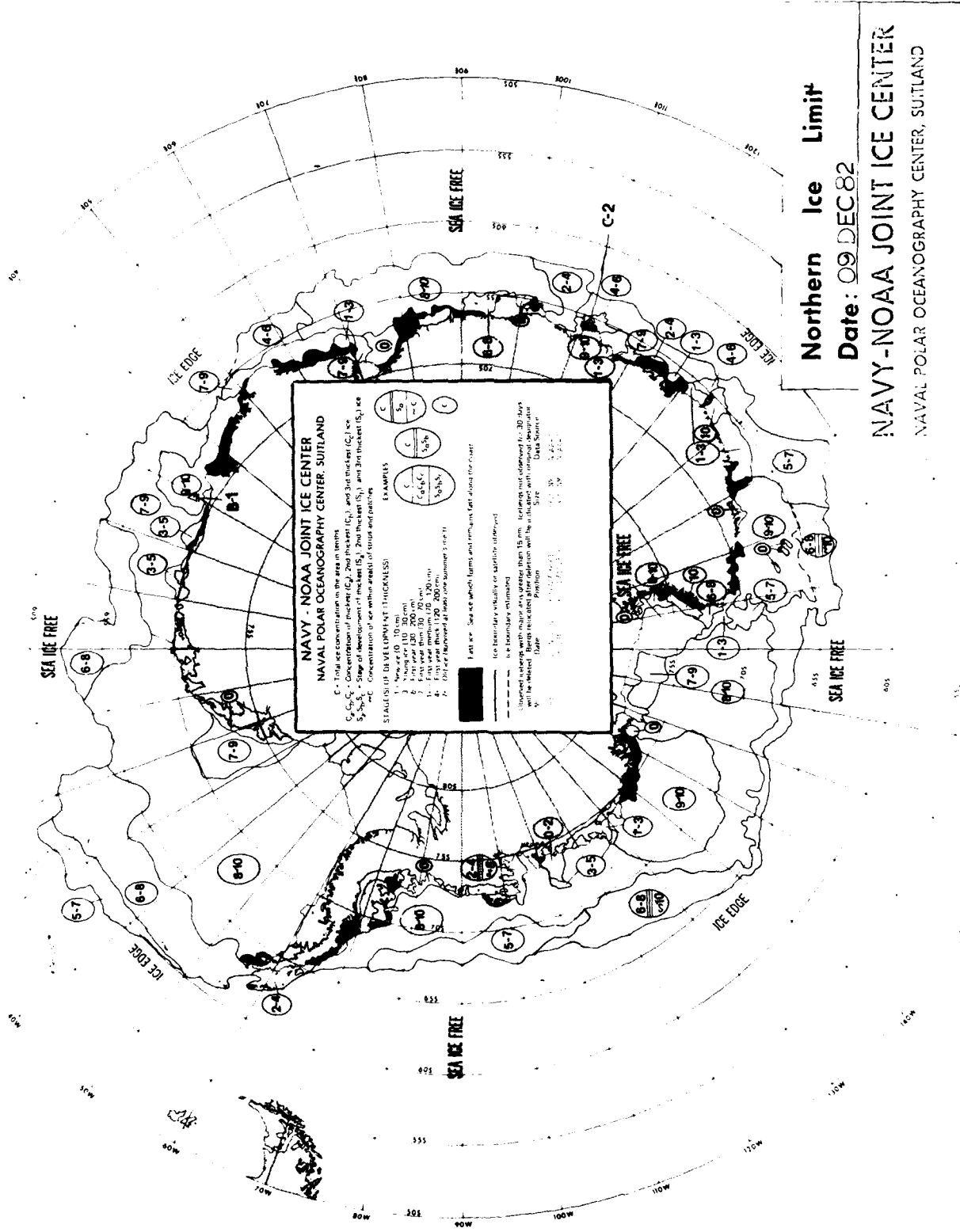


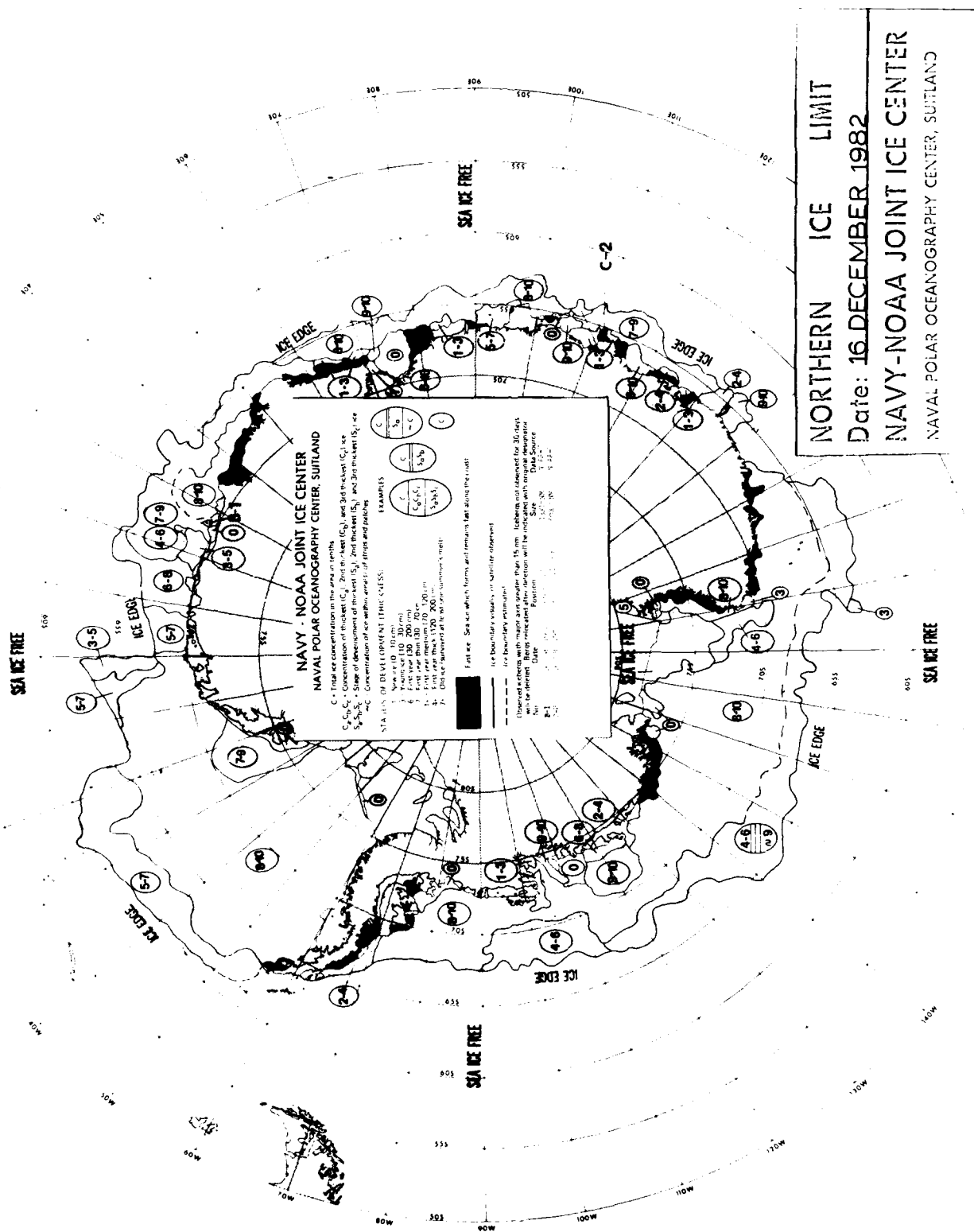
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NAVY-NOAA JOINT ICE CENTER

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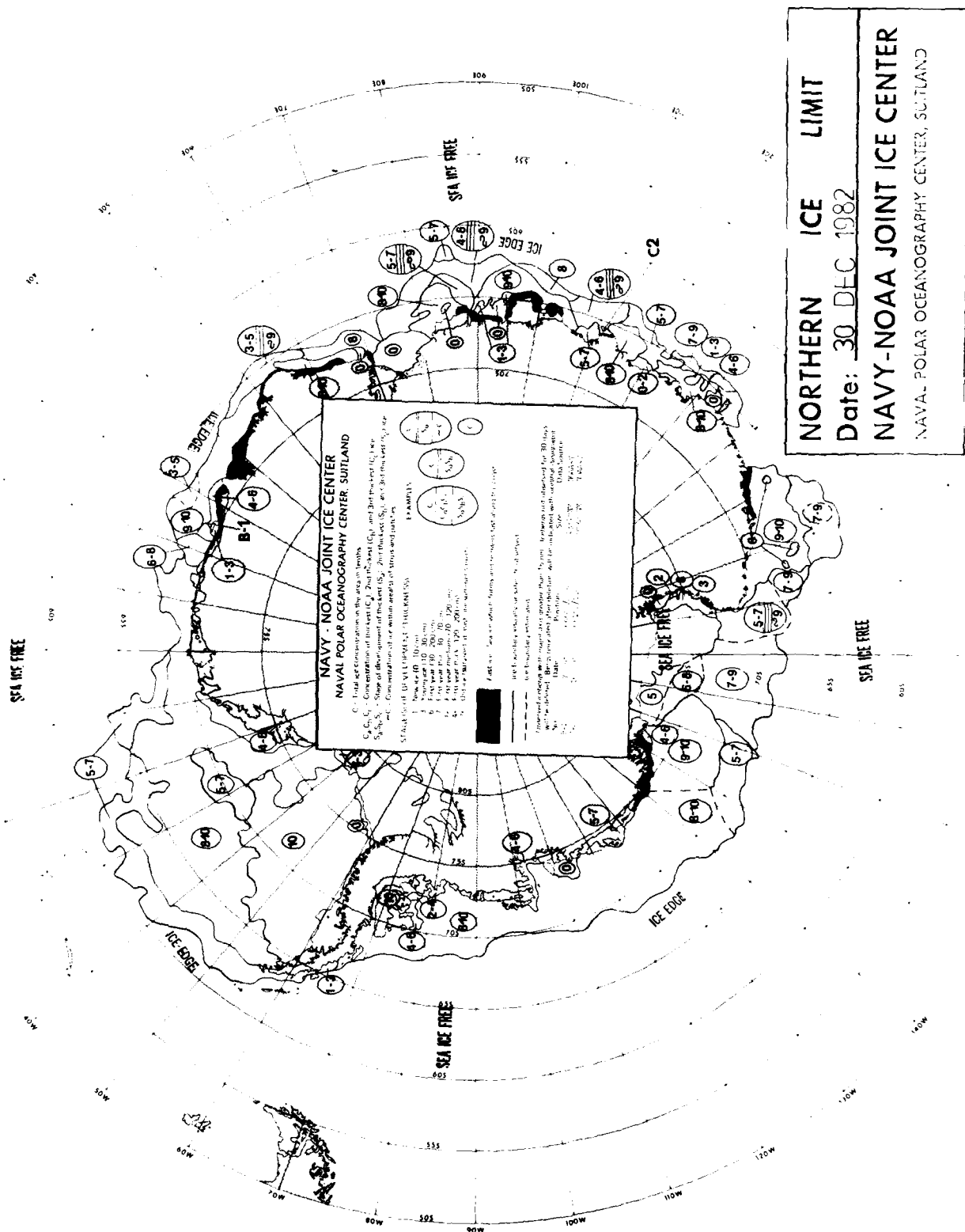


TABLE 1 SATELLITE DATA UTILIZED DURING 1981 AND 1982

Time Period		Satellite Remote Sensing			Resolution	Coverage
From	To	Sensor Platform	Sensor Type	Spectral Region		
1-81	12-82	NOAA-6	AVHRR HRPT/LAC VIS NIR IR IR	0.55-0.68 μm 0.73-1.10 μm 3.55-3.93 μm 10.5-11.5 μm	1km	Regional
			GAC VIS IR	0.55-0.68 μm 10.5-11.5 μm	4km	Global
7-81	12-82	NOAA-7	AVHRR HRPT/LAC VIS NIR IR IR	0.58-0.68 μm 0.73-1.10 μm 3.55-3.93 μm 10.3-11.3 μm	1km	Regional
			GAC VIS IR	0.58-0.68 μm 10.3-11.3 μm	4km	Global
1-81	11-82	NIMBUS-5 *	ESMR	1.55 cm	25km	Global
11-81	12-82					Regional
1-81	12-82	NIMBUS-7	SMMR	0.81 cm 1.66 cm	50km	Global

Abbreviations and Acronyms

AVHRR - Advanced Very High Resolution Radiometer
 cm - Centimeter
 ESMR - Electrically Scanning Microwave Radiometer
 GAC - Global Area Coverage
 HRPT - High Resolution Picture Transmission
 IR - Infrared
 km - Kilometer

LAC - Local Area Coverage
 NIR - Near Infrared
 SMMR - Scanning Multifrequency Microwave Radiometer
 VHRR - Very High Resolution Radiometer
 VIS - Visual
 μm - Micrometer

* NIMBUS-5 recorders failed on 23 November 1982, limiting data to the Alaska region.

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AD-A132 383 ANTARCTIC ICE CHARTS 1981-1982(U) NAVAL POLAR
OCEANOGRAPHY CENTER WASHINGTON DC MAR 83

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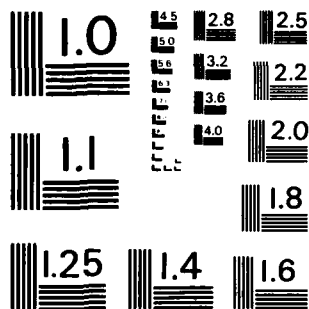
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17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number)		
Sea ice, polar ice fields, satellite imagery, concentration, stage of development, fast ice, concentration of thickness, theoretical thickness, Antarctic.		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number)		
These are approximately 7-days analysis of sea ice prepared by the Naval Polar Oceanography Center, Suitland, MD. Included are ice concentration and ice thickness (age).		

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